1. When Good Bacteria Behave Badly: A Case Report of *Bacillus clausii* Sepsis in an Immunocompetent Adult.

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Reports of unusual microorganisms causing human infections are on the rise in the recent years due to transition in epidemiological trends. Commensal/normal flora which are otherwise termed as "good bacteria" are now causing infections in different group of patients, mostly immunocompromised. Various host and environmental factors play a pivotal role in microbial transmigration from their normal habitat into blood and other body sites. We report one such "good bacteria" associated with sepsis in a patient who was given the same bacterium in the form of probiotics. **Introduction:** Probiotics are live microorganisms which have the ability to colonize human gut and exert beneficial effects.[1] Organisms commonly used as probiotics are *Lactobacilli*, *Bifidobacterium*, *Bacillus* sp., *Enterococci*, *Escherichia*, *Streptococcus* or fungi such as *Saccharomyces boulardi*.[2,3] The beneficial effects of probiotics documented in literature are: synthesis of vitamins, prevent colonization of pathogenic bacteria, antagonize other bacteria by secreting bacteriocins and other antibacterial substances, stimulation of secretory IgA antibodies which antagonize other pathogens, etc.[3] These benefits make them a potential option in treating antibiotic associated colitis, critically ill and surgical patients, diarrhea in children as well as adults. Although the beneficial effects of probiotics are well publicized, the risk and drawbacks due to the same is almost always neglected. There have been reports of various probiotic bacteria such as *Bacillus subtilis* causing sepsis but very few reports from India and Philippines have surfaced in the recent months on *Bacillus clausii* sepsis in immunocompromised individuals and in neonates. We encountered a diabetic adult but an otherwise normal individual developing sepsis with *B. clausii*, the source of which was traced to be the same organism given to her in the form of probiotics. To the best of our knowledge, this is the first report of *Bacillus clausii* causing sepsis in an immunocompetent adult. **Case description:** Our patient is a 45-year-old diabetic, not a known hypertensive, no history of any other chronic illness and no other significant past or family history. She presented to the emergency department with acute onset frontal headache of one day duration. She was diagnosed with cerebral vein thrombosis with right parietal intraparenchymal bleeding with edema and midline shift. Emergency decompressive craniotomy was done for her. She was gradually weaned off the ventilator and tracheostomy tube were decannulated. She was mobilized and her GCS improved to 15/15. After 26 days she underwent autologous and mesh cranioplasty. She then developed subgaleal hematoma 7 days after the cranioplasty for which she underwent re-exploration and evacuation of hematoma. She again developed recurrent subgaleal and extradural hematoma with midline shift and drop in GCS to 5/15. She underwent emergency re-exploration and evacuation of hematoma with bone flap removal with significant blood loss which was corrected with transfusion of 6 units blood and blood products. She was being continuously monitored in the neurosurgical intensive care unit and treated with appropriate line of medication after four surgical procedures. On the third postoperative day of the last surgery her tracheal secretion grew *Klebsiella pneumoniae* which was multidrug resistant. Drain fluid and pus taken from the surgical site also grew multidrug resistant *Klebsiella pneumoniae*. She was treated with appropriate antibiotics and with the probiotic Enterogermina (*Bacillus clausii* spores suspension 2 billion/5 mL, strains: O/C, N/R, SIN and T)[5] as she developed loose stools on broad spectrum antibiotics. After about ten days she developed fever after which two sets of blood cultures were drawn from two different sites. An elevated procalcitonin level of >0.5 to ≤2 ng/mL was noted. Two aerobic blood culture bottles grew Gram positive bacilli within 48 hours which was isolated in pure culture and identified as *Bacillus clausii* by Matrix Assisted Laser Desorption Ionization Time of Flight Assay (MALDI-TOF; Biomeriéux, France). Growth was observed eleven days after initiation of the probiotic containing spores of *Bacillus clausii*. Phenotypic drug susceptibility testing for minimum inhibitory concentration (MIC) using *E* test was performed using Clinical Laboratory Standards Institute (CLSI) M45 guidelines.[4] The isolate was susceptible to ciprofloxacin (MIC value: 0.38 µg/mL) and vancomycin (MIC value: 0.5 µg/mL) but resistant to penicillin (MIC value: 32 µg/mL). All other recommended antibiotics were tested using Kirby Bauer disk diffusion but not reported since there are no interpretative guidelines by CLSI. In order to correlate the origin of blood isolate, the probiotic was subjected to identification following aerobic culture. We were able to isolate and identify the organism as *Bacillus clausii* using MALDI TOF with susceptibility pattern of the probiotic strain perfectly matching the blood isolate. These phenotypically correlative findings convinced us to establish the probable source of *B. clausii* in blood to be from the probiotic. Patient was treated with teicoplanin which showed an MIC of 0.094 µg/mL, however it could not be reported as susceptible due to unavailability of interpretative guidelines. Patient responded well to antibiotic therapy and became afebrile with very good resolution of sepsis within 48 hours of teicoplanin initiation. Repeat blood cultures drawn after two weeks of initial blood cultures showed no growth, thereby signifying adequate response to antibiotic therapy. **Discussion:** The usefulness and disadvantages of using *Bacillus clausii* spores as probiotics in critically ill patients is discussed hereunder. It is noteworthy that *B. clausii* in our patient is definitely a rare occurrence compared to previous reports of *B. clausii* sepsis. Our patient did not have any underlying immunocompromising condition such as malignancy, corticosteroid therapy, transplantation, immunodeficiency syndromes, etc. This observation is contrary to previously published reports of *B. clausii* associated with sepsis in individuals with either one of the above listed immunocompromising conditions.[6,7] Therefore it is noteworthy that *B. clausii* used as probiotics can transmigrate the gut and enter the bloodstream of an individual irrespective of his/her underlying immunocompromised state. Another major lesson from our patient is the necessity to always send at least two sets of blood cultures in clinically suspected sepsis patients.[8] More number of blood culture bottles increases the sensitivity and yield of microorganisms causing sepsis.[9] It is a common practice to brush off Gram positive bacilli as a contaminant from one bottle of blood since *Bacillus* is one of the most common contaminants.[10] In our patient, the organism was isolated from two (aerobic) bottles out of four (two aerobic and two anaerobic) bottles of blood sent for culture. In order to establish the pathogen, it is convenient to collect adequate quantity of blood and convincing evidence would be isolation of the organism of questionable significance from more than one blood culture bottles. In previously published reports, vancomycin, a glycopeptide group of antibiotic has been used in treating patients with *B. clausii* sepsis. Our patient was treated with another glycopeptide, teicoplanin and successful

elimination of the bacterium from blood was achieved. Since interpretative guidelines for teicoplanin are not mentioned in CLSI, the same could not be interpreted from patient's isolate. However, following successful treatment in our patient, it can be postulated that teicoplanin is an effective alternative in treating sepsis due to *B. clausii*. A major challenge in treating *B. clausii* sepsis is the limited therapeutic options. This is due to the fact that *B. clausii* is an organism known to carry multiple drug resistant genes.[11] This could be a reason for treatment failure in patients from previously published reports. Initiation of appropriate antibiotic as well as adequate dosage was another perk in our case which resulted in better patient outcome. Therefore, a thorough knowledge on resistance pattern is mandatory while dealing infections with exotic/unusual organisms. Good bacteria can turn bad, good bacteria can carry drug resistant genes, good bacteria can be recalcitrant to therapy and require high end antibiotic therapy. The bacterial strains used as probiotics can become virulent and establish themselves as pathogens. The mechanism of virulence is still questionable especially in normal individuals, thereby warranting thorough research on the same. **Conclusion:** *Bacillus clausii* may be safe as a probiotic but its use in immunocompromised and chronically ill patients is definitely questionable. This therapeutic dilemma is due to its probable ability to transmigrate from the gut into the blood stream and cause sepsis as experienced in our patient. There are no previous reports of *B. clausii* sepsis among adults with no known underlying chronic disease or immunocompromising condition. This case report can thus be taken as a wakeup call for making judicious use of this probiotic even in normal individuals. We conclude by stating that use of probiotics containing *Bacillus clausii* spores in critically ill patients cannot always be termed as beneficial; rather its use be considered with a word of caution.

2. Prevalence of Causative Organisms for Nontubercular Chest Infections in Diabetics vs Nondiabetics Admitted in an ITU at Two Geographical Locations Far Apart in West Bengal.

Sanjay Sud

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Objectives: A retrospective multi-centric study to find out if there was any difference in the causative organisms for chest infections in diabetics vs nondiabetics isolated from their sputum. The data would help in initiating empirical antimicrobial therapy for patients at an early stage and determine the prevalence of the causative organisms in the population. **Materials and methods:** The study was done at two different centers 307 km apart. Total patients included was 200 (100 from each center), half of these patients were diabetic and the other half nondiabetic for both the centers. Sputum samples were collected for each patient.

Inclusions:

- Nonpregnant adults
- Admitted in the ITU
- Suffering from chest infection
- Diabetic

Exclusions:

- Patients refusing consent
- GCS < 13 at admission
- Seriously ill, like CVA, ACS, AMI, etc.
- Sputum positive for AFB

The patients were divided into two groups in each center

I—diabetic, and II—nondiabetic

Results: The results obtained were tabulated in 4 tables (2 tables for each center—group I and II). The organisms from the sputum of diabetics was very similar in both the centers. *Klebsiella pneumonia* (42%—center 1 and 46%—center 2), followed by *Staphylococcus aureus* (26%—center 1 and 24%—center 2). The organisms from the sputum of nondiabetic patients were different from the diabetics. *Staphylococcus aureus*—30%—center 1 and 36%—center 2, followed by *Acinetobacter baumanii*—20%—center 1 and *Klebsiella pneumoniae*—26% center 2. **Conclusion:** A significant similarity was found in the prevalence of causative organisms for chest infections, in patients of T2DM admitted in an ITU at the two centers. The prevalence of causative organisms in nondiabetics was much different. *Klebsiella pneumoniae* was predominant in diabetics, while *Staphylococcus aureus* was predominant in nondiabetics.

3. Quality Indicator of ICU.

Ziyokov Joshi

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Objective: To evaluate the quality care in ICU we have ICU care indicator for ICUE care. **Results:** ICU mortality 4% ICU reintubation rate 1.5% ICU hic indicator also done.

4. An Epidemiological Study of ESKAPE Organism in Critically Ill Adult Patients Admitted in Medical Intensive Care Unit.

Amit Jain

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Introduction: Antimicrobial resistance has been on the rise in the past few decades in all parts of the world and has become a challenge to health care system and India is no exception which shows the same trends. Antibiotic use is unnecessary or inappropriate in as many as 50% of cases and this creates unnecessary pressure for the selection of resistant species. **Objectives:** The primary aim is to find out the bacterial profile and characterize the antimicrobial resistance in ESKAPE pathogens isolated from various clinical specimens of critically ill patients and evaluation of associated risk factors. Secondary aim to compare the mortality, risk factors and demographic characteristic in patients affected with ESKAPE organisms and compare with patients affected with non-ESKAPE organisms. **Study design:** A prospective observational study will be conducted from June 2019 to December 2019 in patients of Medical ICU in Dr BL Kapur Memorial Hospital, New Delhi.

Inclusion criteria:

- More than 18 years of age
- Presence of MDR, culture isolated from following clinical specimens—blood, respiratory, urine, CSF, exudate and other body fluids during the duration of the ICU stay.

Exclusion criteria:

- Age < 18 years
- Pregnant patients
- Preadmission cultures positive
- Patient stay more than 72 hours in outside hospital

Study procedures: Patients will be included only once in the study, regardless of the number of times ESKAPE organism is isolated. The parameters which will be studied for each patient are age, sex, acute physiological assessment and chronic health evaluation (APACHEII), duration of ICU stay, duration of stay in hospital, comorbid illness, presence of immunocompromised state, patients on immunosuppressive therapy, presence of indwelling devices (central line catheters, mechanical ventilator, EVD—external

ventricular device, VP—ventriculoperitoneal shunt), exposure to antimicrobial therapy, source of infection (BAL/ET fluid, urine, blood, body fluids). Comorbid illnesses including diabetes mellitus, carcinoma, granulocytopenia, hepatobiliary disease, chronic renal failure, and chronic obstructive pulmonary disease will be noted and analyzed in the study. This study will provide information on occurrence, acquisition, most common sites and clinical outcomes of ESKAPE infections with correlation of possible risk factors for infection especially with MDR strains. The trends and possible risk factors identified will be useful in strengthening the infection control programs. It will also focus on impact of antibiotic selection and predictors of clinical outcomes. **Results and conclusion:** Study to be done.

5. Obstetric Sepsis: Predicting Outcomes using Modified Obstetric Sepsis Scores.

Amita Ray

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Background: Obstetric sepsis continues to be one of the major causes of maternal mortality. Assessment of obstetric sepsis and management plans need to take into consideration the altered immunological and physiological responses of the pregnant woman. Subsequent to the development of the sequential organ failure score (SOFA) for assessing sepsis an obstetrically modified SOFA (omSOFA) score has been proposed by the Society of Obstetric Medicine of Australia and New Zealand which takes into account these altered responses in pregnancy. **Objectives:** We did this study with the objective of comparing the obstetrically modified SOFA (omSOFA) scores with the ordinary SOFA scores to find which of these better predicted the outcomes of mortality, in patients with obstetric sepsis. **Materials and methods:** All cases of obstetric sepsis that were admitted to our hospital ICU during the period August 2017 to July 2018 were included in this study. SOFA, omSOFA, qSOFA (quick sequential organ failure assessment) and omqSOFA (were calculated and serum parameters considered specific for detection and monitoring of sepsis were done for each case. Fisher's exact test was used to calculate the *p* value for significant association between the scores and mortality. Binary logistic regression was used to assess the best predictor of mortality. **Results:** There was a significant association ($p < 0.001$) between mortality and the SOFA, omSOFA and omqSOFA scores. The qSOFA score was not significantly associated with mortality (p value = 0.315). The omSOFA proved to be the best predictor of mortality. **Conclusion:** From the results of this study it can be concluded that modifying the SOFA scores has increased the relevance and the predictability of mortality in this special category of patients with sepsis. Thus when managing women with obstetric sepsis the obstetrically modified sepsis scores should be used.

6. A Retrospective Analysis of Diagnosis of Systemic Infection using Syndrome Evaluation System (SES).

BV Ravikumar

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Objective: To demonstrate the utility of SES in diagnosis of systemic infections in patients admitted under critical care settings.

Materials and methods: This is a retrospective study of 4,061 sample that was sent to XCyton Diagnostics Pvt. Ltd, Bangalore from various tertiary care centers across the country, for testing on proprietary multiplex platform test called syndrome evaluation system (SES). Samples were tested on six different SES panels, from 2014 to 2018. SES tests for 9 RNA viruses, 8 DNA viruses, 17 bacteria and 3 fungi in six different panels. Twenty different types of clinical specimen (BAL, pleural fluid, pus from pancreatic abscess, bone biopsy, synovial fluid, pericardial fluid, EBUS TBNA, tissue abscess, etc.), including blood samples were obtained from the patients with various critical infections. The clinical signs, symptoms, co morbidities and any available radiological and culture findings results mentioned in test requisition forms, were used to analyze the data. The follow up data on patients was not considered in this study. All patients received antimicrobials for >4 days before sample was drawn in tertiary care center. **Results:** Overall detection rate for all clinical specimen types was found to be 52.32%. Positivity among neonate samples was found to be 53.24%. Among high risk patients with MODS, sepsis, septic shock, assisted ventilation, ARDS, AKI and neutropenia SES had a detection rate of 60%. SES detected 58% positives among a total of 832 transplant cases. Among which bone marrow had highest viral detection compared to other transplants (heart, kidney, lung, liver and renal). SES detected 73% of polymicrobials among BAL samples and 13% in blood samples. Polymicrobial infections were detected more in immunosuppressed or patients with prolonged hospitalization. The power of multiplex PCR with syndrome evaluation was thus demonstrated in systemic infection.

7. A Retrospective Observational Study on Appropriateness of Antibiotic Therapy and Multi Drug Resistant Gram Negative Bacteria (MDR GNB) Associated Mortality in the Intensive Care Unit (ICU).

Sharmila Chatterjee

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Introduction: To assess mortality associated with appropriateness of empirical antibiotic therapy among non-MDR, MDR, XDR/PDR GNB infections in ICU. **Materials and methods:** Retrospective cohort study conducted in ICU of a tertiary-care hospital in India between July 2017 and January 2018. All consecutive infectious episodes with positive culture for GNB and treated with empirical antibiotic included. Variable information-patient demography, APACHE IV score, culture report, drug-resistance pattern of isolated organism (non-MDR, MDR, XDR/PDR), empirical antibiotic appropriateness. Outcome assessed-all cause ICU mortality compared between non-MDR, MDR, XDR/PDR groups. All analysis done after adjusting for disease-severity. **Results:** Of 310 total ICU patients 60.6% were males. Mean age and mean APACHE IV did not significantly differ between non-MDR, MDR, XDR/PDR groups (68.2 ± 13.8, 67.4 ± 16, 64.9 ± 18.9 years, respectively, $p = 0.8$; 67.4 ± 28.6, 68.7 ± 23.9, 74.2 ± 28.3, respectively, $p = 0.2$). 41.9% ($n = 130$) of patients had non-MDR-GNB, 25.8% ($n = 80$) MDR and 32.3% ($n = 100$) XDR/PDR-GNB in bio-specimen. Commonest isolated MDR-GNB was *E. coli* (30%); commonest XDR/PDR-GNB was *Klebsiella pneumoniae* (52%). 58.1% of patients received appropriate empirical antibiotic. ICU mortality did not significantly differ between non-MDR vs MDR groups (20% vs 23.3%; $p = 0.6$); there was significant difference in mortality between non-MDR vs XDR/PDR; MDR vs XDR/PDR groups (20% vs 52.9%; $p < 0.001$; 23.3 vs 52.9, $p < 0.001$). Patients receiving appropriate antibiotic therapy had significantly lower mortality compared to those receiving inappropriate antibiotic (18.3% vs 51.4%, $p < 0.001$). In both MDR and XDR/PDR groups patients who received an appropriate antibiotic had significantly

lower mortality compared to inappropriate antibiotic (MDR: 8.3% vs 38.9%, $p = 0.002$; XDR/PDR: 28.6% vs 58.5%, $p = 0.04$). Disease-severity adjusted analysis showed higher odds of mortality for MDR infected patients compared to non-MDR but this was not statistically significant (adjusted OR 1.3 95% CI 0.6–2.7, $p = 0.5$). Compared to MDR, XDR/PDR infected patients were significantly more likely to die in adjusted analysis (adjusted OR 5.1 95% CI 2.6–9.8, $p < 0.0001$). Adjusted analysis also showed significantly higher odds of mortality among patients receiving inappropriate antibiotic compared to appropriate antibiotic group (adjusted OR 5.2 95% CI 2.8–9.1, $p < 0.0001$). **Conclusion:** Appropriateness of empirical antibiotic therapy is associated with lower mortality even in MDR and XDR/PDR-GNB infected patients.

8. A Unique Case of Postdengue Fever Hemophagocytic Lymphohistiocytosis with Coagulopathy.

Abhishek Bhattacharjee

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Hemophagocytic lymph histiocytosis (HLH) is a very rare but potentially fatal disease and a very unusual complication of dengue fever. A 29-year-old male patient, resident of Bhutan was admitted in a local hospital with dengue fever, treated successfully and discharged in stable condition after 7 days. After discharge, the patient gradually developed shortness of breath, abdominal distension, fever, anemia, leucopenia, coagulopathy, hepatosplenomegaly, bilateral pleural effusion, ascites and transaminitis. Patient was shifted to our institution for further management. Patient was started on broad spectrum antibiotics, fluid restriction, diuretics and other supportive care including blood products transfusion. Patient was also tested for malaria, typhoid fever, leptospirosis which came out to be negative along with all relevant cultures showed no bacterial growth. Hematology opinion was taken and planned for bone marrow study, in the mean time serum ferritin, triglyceride, fibrinogen and LDH was sent. Despite all efforts patient was gradually deteriorating and also developed GI bleed. Serum ferritin and LDH was very high along with very low fibrinogen level with low triglyceride. Though bone marrow study was not contributory but a diagnosis of HLH was made as per the clinical and biochemical criteria. Patient was started on IV dexamethasone with cotrimoxazole in prophylactic dosage. Cryoprecipitates were transfused to the patient and GI bleed was controlled gradually. Regular blood counts, ferritin, LDH, fibrinogen, liver enzymes were monitored at appropriate interval. Patient was slowly improved clinically as well as there was gradual improvement of hematological and biochemical parameters also and discharged in a hemodynamically stable condition after 3 weeks. Our case is unique because the association of dengue fever with HLH is very rare and unusual and may also lead to coagulopathy with significant GI bleed but early diagnosis and management helped us to successfully treat the fatal condition with a good outcome.

9. A Large Cavitatory Lung Lesion.

Kishorkumar Akoliya

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Introduction: The spectrum of diseases presenting as cavitary pulmonary nodules ranges from acute to chronic infections, chronic systemic diseases, and malignancies. To decide on most correct diagnosis may be challenging. Knowledge of common and uncommon radiological findings in correlation with relevant clinical history and findings is necessary to make the right diagnosis and recommend correct follow-up. **Case description:** A 47 years/female, k/c/o T2DM was admitted with fever, cough, breathlessness and treated as LRTI with DKA in outside hospital for 2 weeks, before shifting to MGM. Patient was treated there with broad-spectrum antibiotics for Rt. Pneumonia following which the opacity resolved leaving behind a very large cavity with air-fluid level. This was confirmed in HRCT-chest after admission to MGM, stating the presence of large Rt. sided large cavity with air-fluid level and Lt. pleural effusion. On admission, patient was hemodynamically and relatively stable, hence started on empirical antibiotics. Patient later developed respiratory distress, hence electively intubated and bronchoscopy done which was s/o inflammation, no obstruction. BAL culture s/o *Pseudomonas*, hence antibiotic escalated appropriately. However, patient eventually developed septic shock and succumbed to the illness. **Discussion:** This was an unusual case of CAP treated with irrational broad-spectrum antibiotics in a relative stable patient, eventually getting complicated with HAI and rapidly progressing to a cavitatory lesion in a short span of 10 days, emphasizing the need for appropriate empirical therapy which has to be again streamlined based on cultures. **Conclusion:** Uncommon radiological presentations for a known disease can limit the investigation findings and make diagnosis difficult. Hence, the best practice for patients optimum outcome should comprise of comprehensive history, appropriate imaging supported by a judicious empirical antibiotic therapy.

10. Delayed Administration of Antibiotics beyond the 1st Hour of Recognition is Associated with Increased Mortality Rates in Children with Sepsis/Septic Shock.

Jhuma Sankar

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Objective: To compare the risk of mortality and other clinical outcomes in children with sepsis/septic shock who received antibiotics within the first hour of sepsis/shock recognition ("early antibiotics" group) with those who received antibiotics after the first hour ("delayed antibiotics" group). **Materials and methods:** In this prospective cohort study, we enrolled children aged 2 months to 17 years presenting to the pediatric emergency with sepsis/septic shock without prior antibiotic therapy. Data on time of administration of antibiotics and outcomes including mortality and, duration of ventilation and hospital stay were recorded prospectively by the study investigators. The outcomes were compared between "early" and "delayed" antibiotic groups. Statistical analysis was performed using STATA 12. **Results:** A total of 441 children were enrolled between June 2017 and September 2019. Majority were males (57%); pneumonia was the most common admitting diagnosis (34%). About 2/3rd (67%) had "septic shock" while the remaining had sepsis. A total of 241 children (55%) were in "delayed antibiotics" group while 200 (45%) were in the "early antibiotics" group. The median (IQR) time to administration of antibiotics was 140 (80, 190) and 30 (20, 40) minutes in the "delayed" and "early antibiotics" groups, respectively. Baseline characteristics were comparable between the two groups. Children in the "delayed antibiotics" group had significantly higher risk of mortality than those in the "early antibiotics group" [(69 28% vs 39 19%)]; RR 1.46; 95% CI 1.04–2.07; $p = 0.03$]. The difference in mortality risk remained significant on multivariate analysis (adjusted OR 3.02; 95% CI 1.34–6.84). There was no difference between the groups in other

clinical outcomes. **Conclusion:** Delayed administration of antibiotics beyond 1 hour of recognition was associated with higher mortality rates in children with sepsis/septic shock. Antibiotics should be administered within the first hour, along with other resuscitative measures, in these children.

11. Clinical Profile and Associated Comorbidities to Predict Outcomes in Patients with Scrub Typhus with Acute Kidney Injury: Study from Central India.

Deepak Jeswani

DOI: 10.5005/jp-journals-10071-23353.11

Objectives: Scrub typhus is an acute febrile illness caused by *Orientia tsutsugamushi*. Scrub typhus is a challenging clinical problem which contributes to the burden of acquired acute kidney injury (AKI). **Materials and methods:** The medical records of last four years (2016–2019) were analyzed for the key clinical, laboratory and in hospital stay parameters. Scrub typhus infection was diagnosed by ELISA technique. **Results:** Thirty nine patients were analyzed (male 22, female 17). The distribution of the was as follow, in year 2019 (n = 14), 2018 (n = 6), 2017 (n = 7), 2016 (n = 12). Twenty eight patients were referred from outside a radius of 30 km and nine were from the close vicinity. Twelve cases presented with both overlapping paroxysm of fever and shaking chills with sweating. Four patients were both hypertensive and diabetic. The mean age was 51 years, no of days of admission was 9.1 days, no of days of ICU stay was 4.4, the mean platelet values were 8,100/µL, with all the patients having thrombocytopenia. The mean TLC count was 11,159/µL. Fourteen patients were 60 years and above. The mean serum urea was 97 (mg/dL) and mean serum creatinine was 2.5 (mg/dL). The details are described in the table. There was one mortality due to multi-organ dysfunction, severe thrombocytopenia, stress cardiomyopathy and respiratory failure. Thirty three (85%) patients responded to doxycycline 200 mg/day in two divided dose (Table 1). **Conclusion:** Our study highlights the association of scrub typhus with AKI as the complication. The early addressal of thrombocytopenia and multi-organ failure is important to improve the outcomes with associated AKI. The timely diagnosis of scrub typhus with varied clinical manifestations is important to have minimal clinical impact of the AKI.

12. A Case of Complicated Scrub Typhus Presenting a Sacute Severe Reversible Heart Failure.

SC Dutta

DOI: 10.5005/jp-journals-10071-23353.12

Introduction: Fifty year aged previously healthy female patient who was admitted with fever with thrombocytopenia and in hospital developed a cute heart failure requiring transfer into ICU. **Objectives:** Her weil felix test was strongly positive and igmforscrubty phusalso returned positive. **Materials and methods:** Bedside 2 dechorevealed severe mitral valve regurgitation. Investigations revealed very high bnp, right heart enlargement, bilateral pulmonary alveolar edema. **Results:** She was started on loading dose of iv doxycycline (200 mg) followed by 100 mg bid along with iv torsemide with supportive therapy to which there was dramatic improvement and HF and MR resolved completely in one week. Thus, in this case scrub typhus infection presented as acute MR and right heart failure and the cause was confusing at the outset. **Conclusion:** Cardiac involvement is not very rare in scrub typhus infections and needs to be duly considered while dealing acute febrile illness with sudden onset of acute heart failure.

13. Scourge of *Acinetobacter* among Out-born Neonates Admitted to Pediatric Emergency of a Tertiary Care Teaching Hospital in North India.

Suresh K Angurana

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Objectives: To study clinical profile, risk factors, complications, antibiotic resistance pattern, treatment, and outcome among out-born neonates with *Acinetobacter* spp. blood stream infection (BSI) admitted in pediatric emergency of a tertiary care teaching hospital in North India. **Materials and methods:** Subgroup analysis of a prospective study conducted over a period of 1 year (February 2018 to January 2019) involving 43 out-born neonates with *Acinetobacter* sepsis. Demographic details, antenatal and perinatal factors, clinical features, pre-referral treatment, complications, antibiotic resistance pattern, treatment, and final outcomes were recorded. **Results:** *Acinetobacter* spp. accounted for 10.6% (43/406) of all isolates and 22.7% (43/189) of Gram-negative isolates. The proportion of *Acinetobacter baumannii* and *Acinetobacter junii* were 76.7% (33/43) and 23.3% (10/43), respectively. The mean age at presentation was

Table 1: Clinical and biochemical parameters

Parameters (n = 39)	*Mean (SD)*	*Minimum*	*Maximum*	*Range*	*95% CI*
Age (years)	51 (16)	17	76	59	46–57
No. of days admission	9.1 (8.4)	1	52	51	6.4–12
No. of days of ICU stay	4.4 (5.5)	0	35	35	2.6–6.2
No. of days of fever before admission	8.7 (5)	2	30	28	7.1–10
TLC (µL)	11,159 (6,809)	1,100	31,900	30,800	8,952–13,367
Glasgow comma scale (GCS)	14 (2.8)	3	15	12	13–15
Platelet (000)	81 (47)	10	203	193	65–96
Fever (F)	99 (1.1)	97	103	5.8	99–99
Serum urea (mg/dL)	97 (59)	6	243	237	78–116
Serum creatinine (mg/dL)	2.5 (1.6)	0.9	8.2	7.3	2–3
SGPT (ALT) (units/L)	124 (79)	12	340	328	90–150
SGOT (AST) (units/L)	175 (125)	24	713	689	134–215
Sodium levels (mmol/L)	137 (9.8)	112	158	46	134–140
Potassium levels (mmol/L)	4	2.8	7	4.2	3.8–4.3

2.3 days and 2/3rd were male. Almost half were preterm and 70% had ≥1 antenatal risk factor for sepsis. Most common clinical features were rapid breathing, retractions, poor feeding, and seizures. All cases were admitted in peripheral hospitals before referral and all received intravenous fluids and antibiotics. Around 60% had early onset sepsis and 40% had late onset sepsis. Common compactions were septic shock, thrombocytopenia, MODS, AKI, pneumonia, and meningitis. The resistance to different antibiotics is: ciprofloxacin 82%, cephalosporins 78–100%, amikacin 75%, piperacillin–tazobactam 62%, carbapenems 50–85%, tetracycline 60%, chloramphenicol 83%, and tigecycline 50%. All isolates were sensitive to colistin. The survivors were 37.2% (n = 16) and 18.6% cases (n = 8) died and 44.2% went LAMA (n = 19). The mean duration of hospital stay was 6.7 days. The survival rate was lower in neonates with *Acinetobacter* BSI when compared to BSI with other Gram-negative organisms [37.2% (16/43) vs 54.1% (79/146) p = 0.0578]. **Conclusion:** *Acinetobacter* spp. accounts for high burden of BSI among out-born neonates and associated poor survival rate (37%). The resistance to cephalosporins, fluoroquinolones, aminoglycosides, piperacillin–tazobactam, carbapenems, and tetracyclines is alarmingly high.

14. Continuous Renal Replacement Therapy—CVVHDF, as an Adjuvant Support in Children with Severe Dengue: A Single Center Experience.

Viswateja Chitturi

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Background: Children with severe dengue require fluid resuscitation for achieving hemodynamic stability. In situations where additional fluid administration may increase the morbidity, i.e., diuretic resistant fluid overload, fluid overload with hypotensive shock, worsening metabolic acidosis with hypotensive shock, we hypothesized that early initiation of CRRT, may be used as an adjuvant therapy for optimization of fluid status and safe management. **Materials and methods:** Retrospective case record review of 12 children with severe dengue, who underwent CRRT in our PICU over a period of 2 years from September 2017 to October 2019. **Results:** Of 336 children admitted during the study period with severe dengue, 12/336 children received CRRT. 9/12 (75%) recovered completely and 3/12 (25%) expired. Time to CRRT initiation was 31.7 ± 28.6 hours and CRRT duration was 63.5 ± 22.7 hours. Mean PICU stay was 9.42 ± 4.56 and hospital stay was 10.42 ± 5.48 days, respectively. Pre-CRRT ferritin and ferritin at 24 hours of initiation were compared and found to have significant fall (9525.9 ± 9093.2 vs 7576 ± 9013.2) (p 0.033). Vasoactive ionotropic score (VIS) was also compared similarly and found to have significant decrease (21.42 ± 17.12 vs 6.67 ± 17.23) (p 0.0006), denoting that CRRT is useful in achieving hemodynamic stability. Other parameters like lactate, lactate clearance, Ph, bicarbonate (HCO3), LDH were not different from T0 to 24 hours (T24) after initiation of CRRT. **Conclusion:** We conclude that initiating CVVHDF as an adjuvant therapy may help in achieving hemodynamic stability in children with dengue shock. Our study is not empowered enough to interpret the mortality benefits, hence clinical trial with a comparative arm may help us to understand the mortality benefit.

15. Characterization of Clinically Isolated Carbapenem Resistant.

Balaram Khamari

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Objective: Carbapenem is the last resort antibiotic for treatment of drug resistant bacteria. However, more recently carbapenem resistant *Escherichia coli* (CRE) are being increasingly reported. This study aims to analyze CRE and understand the prevalence of the associated antimicrobial resistance (AMR), virulence and efflux pump genes, which confer pathogenic and resistance phenotype to these bacteria. **Materials and methods:** Nineteen clinically isolated Vitek 2.0 confirmed imipenem resistant *Escherichia coli* from patients visiting the Sri Sathya Sai Institute for Higher Medical Sciences, Prasanthigram (SSSIHMS-PG) with multiple underlying clinical conditions were collected. These study isolates along with a reference *E. coli* strain ATCC 35218 (n = 20) were analyzed for the presence of 15 virulence factor genes, 8 efflux pump genes, 8 antibiotic resistance genes and a class I integron gene by PCR screening. **Results:** Vitek 2.0 report of AST showed that except for tigecycline and colistin, all the isolates were resistant to majority of the tested antibiotics. DNA extraction followed by PCR amplification revealed that all the isolates were positive for all the tested efflux pump genes and harbored several virulence factors. All the isolates were found to contain at least two of the antibiotic resistant genes which included $bla_{\text{CTX-M}}$ (80%), bla_{TEM} (80%), $bla_{\text{NDM-1}}$ (80%), $bla_{\text{OXA-48}}$ (80%), $bla_{\text{PER-1}}$ (10%) and Int-1 (84%). However, bla_{SHV}, bla_{KPC}, bla_{IMP} genes were not identified in any of the isolates. **Conclusion:** Indiscriminate use of antibiotics may be a very strong selection pressure for the maintenance and spread of several resistance determinants among the clinical isolates. In this regard, devising and incorporation of appropriate infection control measures together with robust antibiotic stewardship programs are recommended. Findings from the current study indicates that the study isolates are a reservoir for AMR and virulence genes and have the potential to disseminate these resistance determinants to previously sensitive bacteria.

16. Clinico-microbiological Profile, Antimicrobial Susceptibility Pattern, and Outcome of Neonates with Culture Positive Sepsis Admitted to Pediatric Emergency of a Tertiary Care Hospital: A Prospective Observational Study.

Swati Mahich

DOI: 10.5005/jp-journals-10071-23353.16

Aims and objectives: To study clinical features, microbiological profile, antibiotic sensitivity pattern, complications, treatment, and final outcome of neonates with blood stream infection admitted in pediatric emergency of a tertiary level hospital in north India. **Materials and methods:** Neonates (n = 406) with blood culture positive sepsis were enrolled in a prospective observational study over a period of 1-year (February 2018 to January 2019). Baseline demographics details, antenatal and perinatal details, clinical features, pre-referral treatment, microbiological profile, antibiotic sensitivity pattern, complications, treatment, and final outcome were recorded. **Results:** The mean age at presentation was 2.4 (0.6) days and 2/3rd were males. The mean gestation was 35.5 (3.4) weeks, birth weight 2,215 (219) g, 45% were preterm, and 55.7% were low birth weight. About 96% (n = 391) were admitted in other hospitals before referral to us where they received intravenous fluids (85%) and antibiotics (96%), oxygen support (97.8%), and vasoactive drugs (17.2%). Tachypnoea, retractions, lethargy, poor feeding, and seizures were most common presenting features. Sixty-nine percent (n = 280) cases had early onset neonatal sepsis and 31% (n = 126) had late onset sepsis. Gram-negative, Gram-positive, and yeast accounted for 46.5%, 27.5%, and 25% of sepsis isolates, respectively. *Klebsiella pneumoniae* (46.5%),

Acinetobacter baumannii (17.5%). *Escherichia coli* (8%), and *Burkholderia cepacia* (7.5%) were common Gram-negative organisms and coagulase negative *Staphylococcus aureus* (cons) (70%), *Staphylococcus aureus* (13.4%), and *Enterococcus* (12.5%) were common Gram-positives. The sensitivity pattern of Gram-negative organisms was: ciprofloxacin 45%, cephalosporins 15–40%, amikacin 42%, gentamicin 20%, piperacillin–tazobactam 49%, imipenem 46%, meropenem 34%, ertapenem 51%, minocycline 70%, doxycycline 55%, chloramphenicol 42%, colistin 98%. The sensitivity profile of Gram-positive isolates was: oxacillin 39%, clindamycin 52%, vancomycin 100%, teicoplanin 98%, and linezolid 99%. The common complications noted were septic shock, thrombocytopenia, mods, aki, pneumonia, and meningitis. The oxygen support was required in 95.1% cases, 41.9% needed mechanical ventilation for 2.5 (1.2) days, and 38.4% received vasoactive drugs. The 60.3% cases survived, 15.5% died, and 24.2% left against medical advice. The duration of hospital stay among survivors was 7.8 (2.3) days. **Conclusion:** Gram-negative organisms are common agents causing neonatal sepsis. Yeast sepsis showed a surge in this study. Sensitivity of Gram-negative organisms to commonly used antibiotics was less (20–50%). Among Gram-positive organisms, only 30–40% were sensitive to oxacillin. The rate of complications and poor outcome (death + lama) was higher (40%) among neonates with culture positive sepsis.

17. Prospective Study of Antimicrobial Resistance Patterns, Empiric Antimicrobial use, De-escalation Practice and it's Impact in a Tertiary Care ICU.

Venkat R Kola

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Background: Increasing antimicrobial resistance poses a significant threat to public health. A safe and effective strategy for antimicrobial use involves prescribing an antimicrobial only when it is needed and selecting an appropriate and effective agent at the recommended dose, and with the narrowest spectrum of antimicrobial activity. Though this is a challenge, it is only the way forward. **Objectives:** To evaluate the practice of antimicrobial de-escalation based on culture results. The pattern of microorganisms isolated, antimicrobial drug resistance patterns in relation to de-escalation. Monotherapy and combination antimicrobial use after and before culture sensitivity. **Materials and methods:** This is a prospective observational study. The medical records of all the patient in medical intensive care unit, who were receiving high-end antimicrobial drugs were followed and analyzed for the practice of antimicrobial de-escalation pattern. **Results:** A total of 625 cases with high end antimicrobial use were recorded during 12 months of our observation period. In 253 (40.48%) cases, they were de-escalated, in 70 (11.20%) cases escalated and in 195 (31.20%) cases, continued on the same antimicrobials, after the culture and sensitivity report. The case mix, indication, monotherapy and combination of antimicrobials and reasons for non de-escalation were analyzed. **Conclusion:** According to the microbiological data, the scope of de-escalation was 71.68% but de-escalation could be achieved only in 40.48% of cases in this study, in-spite of antimicrobial stewardship by clinical pharmacist surveillance. Patient's clinical deterioration, MIC (minimum inhibitory concentration), adequate tissue penetration were the major reasons given for non de-escalation. Most frequently observed infections in the current study were respiratory tract infection (38.56%) followed by tropical fever or sepsis of unclear source (20.64%). The number of drugs prescribed per prescription were monotherapy in 508 (81.28%), combination therapy in 22 (3.52%) and polytherapy 95 (15.2%) of antimicrobials use, especially in septic shock and LRTI. Meropenem (47.53%) was the most prescribed drug. The common organisms isolated were *Escherichia coli* 84 (26.42%) and *Klebsiella pneumoniae* 77 (24.21%).

18. Retrospective Cross Sectional Study Over Five Years for Risk Factors and Clinical Spectrum to Predict Outcomes in Tropical Fever.

Deepak Jeswani

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Objectives: Tropical fever is a burgeoning clinical problem in India with varied clinical spectrum. We retrospectively evaluated the clinical characteristics and trends in symptomology in association with hospital stay and mortality, in cohort of patients with tropical fever. **Materials and methods:** The syndromic approach with presenting feature as acute undifferentiated febrile illness was utilized to identify patients treated by our customized SCOUT protocol adopted over last five years. ANOVA and Chi-square test was used for stratified analysis. **Results:** Total 766 patients (males 62.6%) admitted during 2014–2018. The annual no. of patients was year 2014 $n = 180$, 2015 $n = 101$, 2016 $n = 174$, 2017 $n = 164$, 2018 $n = 147$. The mean age was 35.2 years, mean hospital stay was 5.9 days. Overall, annual mortality rate across five-year period was 4.04% [2014 $n = 7$ (3.8%), 2015 $n = 6$ (5.9%), 2016 $n = 6$ (3.4%), 2017 $n = 8$ (4.8%), 2018 $n = 4$ (2.7%)]; $p < 0.001$. 43.8% ($n = 366$) were within 20 km vicinity and included treatment naïve patients, with the growing trends for increasing admissions from the local community. Majority ($n = 430$) admitted were referred from distant, rural geography with ongoing primary care for the severe symptoms. Stratified analysis was significant for the duration of hospital stay, age, symptoms, GCS on admission, diagnosis, complications ($p < 0.0001$). Mortality free outcomes were defined on the basis, if hospital stay >20 days, age >12 years, GCS 4–8, diagnosis of enteric fever and leptospirosis. Breathlessness at the time of admission, cough and cold and vomiting were the symptoms with highest predictability for worse outcomes with longer hospital stay and mortality. Dengue with IgM/IgG followed by *Plasmodium vivax* had the highest mortality.

Conclusion: Enhanced quality care measures adopted recently have reduced the hospital stay with better clinical outcomes. Early triage for optimal utilization of resources have enabled to deliver an effective care.

19. Clinical Profile of Scrub Typhus in ICU of a Tertiary Care Hospital in Odisha.

Sarat K Behera, Santosh K Nayak, Harish C Chaudhury

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Scrub typhus, a zoonotic disease caused by the bacterium Orientia tsutsugamushi, has become endemic in many parts of India. We studied the clinical profile of this infection in 114 patients that reported to this tertiary care center from July 2013 to July 2019. The median age of patients was 51.5 years (range = 13–78 years), and 69 were males and 45 females. A high-grade fever occurred in 96.5% with a history of an average 8.4 days fever, breathlessness in 84.2% with an average of 1.94 days, jaundice in 41.22%, renal failure in 43.85% out of which 28% underwent hemodialysis, rashes in 30.07%, and disorientation in 31.57%. Average stay in

ICU was 6.65 days and average hospital stay was 11.12 days with multiple organ dysfunction syndromes (MODS) noted in 67.54% patients. The overall case fatality rate was 15.78%. In univariate analysis, ARDS requiring mechanical ventilation, acute kidney injury requiring hemodialysis, hypotension requiring inotropic support, central nervous system dysfunction at presentation, and MODS were inversely associated with survival. Average APACHE II score was found to be 15.87% and SOFA score to be 7.18%. In conclusion, scrub typhus has become a leading infectious disease in Odisha and an important cause of infectious fever. An increasing awareness of this disease coupled with prompt management will go a long way in reducing both morbidity and mortality from this disease.

20. An Unusual Case of Large Granulomatous Cerebral Tuberculosis with Cranial Osteomyelitis without Pulmonary Involvement in a Nonhuman Immunodeficiency Virus Positive Patient.

Manidipam Chatterjee

DOI: 10.5005/jp-journals-10071-23353.20

Introduction: Central nervous system (CNS) infection constitutes approximately 1% of all *Mycobacterium tuberculosis* infection. Cerebral tuberculosis without pulmonary involvement is very rare. Here, we present a case of large granulomatous cerebral tuberculosis (TB) with cranial osteomyelitis in a nonhuman immunodeficiency virus (HIV) positive patient. **Case description:** Sixty years female, known case of diabetes mellitus, hypertension and chronic kidney disease on maintenance hemodialysis, was admitted in intensive care unit with generalized tonic clonic seizure. Her seizure was controlled with antiepileptics. She regained consciousness without residual neurodeficits. She underwent a noncontrast computed tomography (CT) scan of brain which showed a focal irregular osteolytic area in the posteroinferior part of the right parietal bone (likely osteomyelitis) with associated surrounding ill-defined mildly hypodense soft tissue involving the brain parenchyma and moderate diffuse vasogenic oedema in the adjoining white matter in the temporoparietal region. Noncontrast magnetic resonance imaging (MRI) of brain revealed an ill-defined heterogeneous T2 hypointense lesion (probably granulomatous measuring 24 × 13.3 × 21.3 mm) involving right temporal lobe with focal erosion of overlying skull vault and marked perilesional oedema. Cerebrospinal fluid examination revealed a raised protein level. A mini craniotomy and biopsy of the lesion was performed. Gene Xpert study of the biopsy specimen revealed *Mycobacterium tuberculosis* infection without rifampicin resistance. CT scan of chest showed normal lung parenchyma. Patient was started on antitubercular regimen. She had full clinical recovery and was discharged in stable condition. **Discussion:** This case illustrates the possibility of clinically significant isolated cerebral tuberculosis with cranial bone osteomyelitis in non-HIV positive patient. **Conclusion:** Our case demonstrates the need of high degree of suspicion for CNS TB in an appropriate clinical scenario.

21. Vertical Transmission of Dengue Virus in Human: A Case Report.

Surendra Kumar

DOI: 10.5005/jp-journals-10071-23353.21

Introduction: Dengue fever is amongst the endemic tropical fevers in India. Vertical transmission of dengue virus although reported in literature is extremely rare. Google search had revealed only 3 publications on vertical transmission of dengue in humans. We report a case of vertical transmission of dengue virus from a full term pregnant patient to her neonate that we had cared for in this season. **Case description:** A 22-year female with 36 weeks amenorrhea and hypothyrodism presented to us with acute febrile illness with thrombocytopenia and hepatopathy. She tested to be positive for dengue specific NS1 antigen. She was managed accordingly with fluid resuscitation, transfusion of blood products and subjected to LSCS on 5th day of admission because of passage of meconium with delivery of a full term male baby. She recovered gradually and was discharged from hospital on day 10 of admission. The delivered new born was found to have respiratory distress secondary to meconium aspiration. A dengue serology was sent on first day because of thrombocytopenia in new born and patechiae. The dengue serology came positive for dengue specific NS1 antigen. The new born was managed with CPAP and oxygen, surfactant therapy and platelet transfusion along with other supportive management. He developed seizures on day 4 of life followed by shock, bleeding diathesis from which he could not be revived in spite of best efforts. This report highlights the fact that the vertical transmission of dengue virus in humans although less reported and recognized, it carries a potential risk of death for infected neonates.

22. Eschar in a Patient with Febrile Illness: Look beyond Scrub Typhus.

Ashish Bansal

DOI: 10.5005/jp-journals-10071-23353.22

Introduction: Ever since scrub typhus was identified as one of the leading causes of tropical fever, we have been looking for eschar (present in 20–87%) and to diagnosis of scrub typhus early on in suspected patients. We present a case that presented to us with similar history and had an eschar but turned out to be altogether a different case. **Case description:** A 42-year-old female presented to us on 02.06.2019 in shock with a short history of fever, vomiting, and red eye. She was found to be in altered sensorium, neck rigidity ±, and right periorbital swelling. We three eschar could be identified. She was intubated and ventilated and managed accordingly. She was investigated accordingly to rule out tropical fevers like malaria, scrub typhus, and meningoencephalitis. Only positives were a raised procalcitonin and leukopenia. On a detailed history we could solicit a history of initiation of neomercazole 20 mg BD, propranolol and alprazolam 3 months back. Over next three days the periorbital swelling changed its color and became black with areas of sloughing and ulceration. KOH mount from skin ulcer showed broad aseptate fungal hypae. She was started on liposomal amphotericin B; CT PNS was suggestive of mucosal thickening right paranasal sinuses. She gradually improved with these measures and was discharged. **Conclusion:** Scrub typhus over last three years has been identified as a leading cause of tropical fever syndrome in our area. Presence of eschar can push us into diagnosis of scrub typhus. However, there are other causes of eschar as well (septic emboli, mucor mycosis, herpes, malignancy, etc.) which should be looked out for as well.

23. Outcomes of Sepsis-3 Patients Admitted to Critical Care Unit in a Tertiary Care Hospital: A Prospective Observational Study.

Ippa D Reddy

DOI: 10.5005/jp-journals-10071-23353.23

Introduction: The third International Consensus Definitions for Sepsis and Septic Shock (SEPSIS-3) were "Sepsis" is defined as

"life-threatening organ dysfunction caused by a dysregulated host response to infection." "Septic shock" was defined as a subset of sepsis in which underlying circulatory and cellular metabolism abnormalities are profound enough to substantially increase mortality. We couldn't find any major data from India, so planned a study. **Objectives:** To study the outcomes of patients admitted to medical intensive care unit (MICU) as per SEPSIS-3 definition. **Materials and methods:** A prospective observational study conducted on SEPSIS-3 patients admitted to MICU, Citizens Specialty Hospital, Hyderabad. Exclusion criteria were postcardiac arrest, age less than 18 years and DNR status. The primary end point is in-hospital mortality. The parameters monitored were age, hospital and ICU length of stay (LOS), source of sepsis, comorbidities, APACHE II, previous admissions within 90 days, neutropenia, cumulative balance, use of renal replacement therapy (RRT), glucose control, use of vasopressors, number of organ failure, readmission to ICU, ventilator duration, use of NIV, lactate clearance in 6 hours. **Statistical analysis:** Statistical analysis was done using Chi-square test or Fisher's exact test, Student's *t* tests and multivariate logistic regression analysis. **Results:** Total number of participants are 55. The mean age was 57.4 years, ICU (intensive care unit) and hospital LOS were 4.42 days and 7.27 days, respectively. The male and female percentage were 54.5% and 45.5%, respectively. Cumulative balance of 2,512 mL, mean APACHE II score 16.42. In-hospital mortality rate was 10.9%, predicted mortality as per APACHE II was 23.5%. Factors which influenced the increased in-hospital mortality were male sex, invasive mechanical ventilation, decreased lactate clearance, neutropenia, use of vasopressors and use of RRT. Comorbidities, non invasive ventilation, previous hospitalization, increased number of organ failures, readmission to ICU, and glycemic control has no impact on mortality. **Conclusion:** In patients admitted with SEPSIS-3 to medical ICU, the factors which increased in-hospital mortality were male sex, invasive mechanical ventilation, decreased lactate clearance, neutropenia, use of vasopressors and use of RRT.

24. Safety and Impact of Antibiotic De-escalation in Children with Sepsis: A Descriptive Study from a Pediatric ICU.

Vasudha Battula

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Introduction: Critical-care setting often necessitate use of broad spectrum antibiotics. This raises concerns of antimicrobial resistance and adverse effects. De-escalation is advocated as an effective tool to combat these problems. We tried to look at the safety of de-escalation and factors affecting it. **Primary outcome:** To study the safety of antibiotic de-escalation in septic children. (a) Worsening of primary infection. (b) New infection. **Secondary outcome:** To study the factors limiting and facilitating antibiotic de-escalation. **Materials and methods:** Children admitted to PICU, receiving empiric antibiotics for sepsis from January to June 2019 were included. Postoperative admissions and those discharged/died within 48 hours were excluded. Empiric antibiotics were started after sending two aerobic blood and other appropriate cultures. After 48–72 hours, antibiotics were de-escalated/escalated or continued. Data relevant to antibiotic therapy, ICU support and mortality were recorded. **Results:** Of 360 PICU admissions during 6 months, 246 received antibiotics. Excluding 77 postoperative admissions and 15 children who died or were transferred within 48 hours, 155 children with 162 episodes of sepsis were analyzed. Antibiotics were deescalated in 95 instances (58.6%), escalated in 11 (6.8%) and empirical antibiotics continued in 56 (34.6%). Worsening of primary infection happened in 5 (5.2%) children receiving de-escalation and in 3 (5.3%) children continued on empirical antibiotics [*p* value: 0.49, odds 0.98 (0.2–4.2)]. De-escalation group had 6 new infections and the group continued on empiricals had 5 new infections [*p* value: 0.27, odds 0.6 (0.19–2.3)]. No difference in mortality between two groups. Cultures identified a pathogen in 37 of 162 (22.8%) episodes of sepsis. Commonest reason for de-escalation was blood and/or body fluid cultures. Lack of clinical improvement, unidentified alternate diagnosis and reluctance of the consultant were the most common causes for not de-escalating. **Conclusion:** Deescalating antibiotics in critically-ill, immune competent children based on clinical condition, blood and body fluid cultures is safe. Increase in incidence of new infection in children continued on empirical antibiotics needs further research.

25. Retrospective Study of Two Year Strong Antimicrobial Stewardship Program in a Tertiary Care Institute in Mumbai.

Nikita Shah

DOI: 10.5005/jp-journals-10071-23353.25

Background: The postantibiotic era has made many institutes launch a strict AMS program. **Aim:** To study the differences in DDD, length of stay and resistance pattern in a before and after model of implementation of a strict AMS program. **Materials and methods:** Defined drug dose was calculated by the formulae mentioned below for two periods 2015 October to October 2017 and October 2017 to October 2019.

$$\text{DDD} = \frac{\text{Total antibiotics usage (g) in a year}}{\text{DDD of meropenem in a day} = \text{DDD} / 365}\text{DDD (from WHO)}$$

And after implementation of the AMS program 2016 period 2a and 2b. The length of stay was taken form HIS. The resistance pattern of the restricted antibiotic namely vancomycin, linezolid, tigecycline, colistin, was studied for various infection which include SSTI, UTI, BSI, RTI in both periods 1 and 2. The AMS program was a collaborative effort by pharmacist, ICN, microbiologist and intensivist. **Results:** Out of the 14,544 total admissions in the year from October 2015 to October 2017, 4,569 patients received restricted antibiotics. The average length of stay was 7.48 days. In period 2 out of 15,199 patient. The average length of stay was decreased to 3.96. However the usage of meropenem, anidulafungin, teicoplanin, amphotercin B, polymyxin B antibiotics increased with a reduction number of sensitivity. It was surprising note a commensurate rise in the sensitivity of vancomycin, linezolid, tigecycline, colistin. **Conclusion:** The AMS apart from reducing consumption of some major antibiotics also seems to be associated with reduced length of stay and increase in sensitivity.

26. Study of Antimicrobial Utilization and Cost for Treatment of Sepsis in Medicine Intensive Care Unit of a Tertiary Care Hospital in Eastern India.

Sunil K Jena

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Objectives: To evaluate the utilization pattern and cost analysis of antimicrobial therapy used in the medical ICU, using the ATC/DDD index. **Materials and methods:** This was a prospective observational study done between October 2018 and September 2019. All patients ≥18 years age admitted to the ICU > 24 hours (expected to stay more than 48 hours) and receiving antimicrobial therapy were included.

Demographic data, ICU severity scorings and source of sepsis were noted. Antimicrobial therapy information was noted which include number and types of antimicrobial drugs, dose and dosage form, duration of therapy, choice of antimicrobial drugs after c/s report and cost analysis of all antimicrobial therapy. Antimicrobial drugs use and cost analysis was done using ATC/DDD index, which is also suggested by WHO to be used in similar studies. **Results:** Nine hundred and thirty nine patients were included; 607 male and 332 females. Mean age was 55.9 ± 18.5 years. Two hundred (21.3%) patients died. Mean length of ICU stay was 4.6 ± 4.1 days. Charlson comorbidity index, APACHE II and SOFA scores were 2.5 ± 2.1, 17.7 ± 6.7 and 5.9 ± 3.3, respectively. Regarding source of sepsis, tropical infection (54.2%) was the most common cause followed by pneumonia (24.1%). No comorbidities were associated with increased use of restricted antimicrobials (carbapenems, tigecycline and polymyxins). Only APACHE II had a significant association ($p = 0.047$) with use of restricted antimicrobials (up to 5 times higher risk if APACHE II >20). Antimicrobial DDD was 48.2 ± 87.2 and DDD/1,000 patient days was 99.9 ± 110.7. Antimicrobial therapy cost per patient was 226.6 USD and cost per patient per day was 48.5 USD. **Conclusion:** Ceftriaxone was the highest used antimicrobials. The risk of receiving restricted antimicrobials increased with worsening APACHE II score. Utilization of restricted antimicrobials in the ICU was around 20%. The cost of per patient per day was less than 50 USD which is less than other studies. DDD/1,000 patient days was around 100 which is similar to other studies worldwide.

27. Sterility with Satisfaction.

Makam S Harsha

DOI: 10.5005/jp-journals-10071-23353.27

Objectives: Every health care professional knows that hand hygiene is to be practiced before performing any invasive procedure (in theory). But when it comes to practicality, it is a known fact that there exists a major breach in asepsis precautions most of the times among physicians while performing any procedure. There is still no clear understanding as to why physicians, even after knowing all facts, fail to adhere to standard practices of asepsis. SOA survey was conducted among intensivists of our institute regarding their hand hygiene practice and their satisfaction at work to assess their correlation. **Materials and methods:** A survey was designed, which consisted of 51 simple questions, asking about the individual hand hygiene practices and aseptic precautions before various types of invasive procedures such as intravenous cannulations (PIVC), intra-arterial cannulations (IAC), central venous cannulations (CVC), NG/OG tube insertions (NOGT), and endotracheal tube intubations (ETT), in addition to their years of their clinical experience and satisfaction after each procedure, and at work overall. One hundred intensivists (anaesthesia, general medicine, pulmonary medicine, including faculty and residents) were asked to fill up this survey online and data was analyzed. **Results:** Overall 81% opted they could've done a better job at work. Seventy five percent did not follow strict asepsis precautions routinely. Interestingly 90% opted yes to being interested in performing all procedures. Fifty six percent had clinical experience more than 5 years and their adherence to asepsis was 71%. Thirty six percent opined that lack of time came as a hindrance to patient care. **Conclusion:** This survey among intensivists gives an idea that physician's interest in performing the invasive procedures doesn't guarantee their sincere adherence to the standard asepsis guidelines, and lack of time for patient care isn't always their excuse.

28. Clincial Outcomes of Ceftaroline Fosamil (CPT) vs Ceftriaxone in Indian Subset Patients with Community Acquired Pneumonia: Subset Analysis of Asia Cap Study.

Mane Akshata

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Objective: Study in Asian patients by Zhong et al. in 2015 comparing ceftaroline fosamil (CPT) with ceftriaxone (CRO) (including India) with PORT III–IV community-acquired pneumonia showed that CPT was superior to CRO. In this analysis we determined if results from Indian population were in-line with the overall population.
Materials and methods: In the overall study (noninferiority with nested superiority trial) patients were randomized (1:1) to receive intravenous CPT (600 mg every 12 hours) or CRO (2 g every 24 hours) for 5–7 days. The primary endpoint was to determine clinical cure at test-of-cure (TOC) visit (8–15 days after last dose of study drug) in the clinically evaluable (CE) population. The secondary outcomes were clinical cure at TOC in modified intent-to-treat (MITT), microbiological MITT (mMITT) and microbiologically evaluable (ME) populations. Qualitative analysis was performed to assess the efficacy and safety in the Indian subset and the results were compared with the overall population. **Results:** Two hundred patients from 14 centers were randomized to receive either CPT ($n = 100$) or CRO ($n = 100$). The clinical cure rates in Indian population for CE, MITT, mMITT and ME population at TOC for CPT group vs CRO group were 95.1% vs 92.7% (difference: 2.4; 95% CI: −7.4 to 13.1), 89% vs 81% (difference: 8.0; 95% CI: −2.0 to 18.2), 96.3% vs 81.5% (difference: 14.8; 95% CI: −2.6 to 33.9) and 100% vs 85.7% (difference: 19; 95% CI: −4.4 to 40.4), respectively. The clinical cure rates were in-line with those reported for overall population. The frequency of adverse events of both treatment groups was similar and in-line with overall population. **Conclusion:** The clinical cure rate was numerically higher for ceftaroline as compared to ceftriaxone for all population subsets. CPT was well tolerated in the India subset. The results were in line with the overall population.

29. Case of Autoimmune Neutropenia Complicated with Rhino-cerebral Mucormycosis.

Rahul Bhume

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Case description: Autoimmune neutropenia is a rare disorder that may predispose to life threatening infections. It is caused by granulocyte specific antibodies. Although not defined very well, it is classified into primary and secondary forms. Herein we report a case of 58-year-old female patient with suspected primary AIN with her course complicated by mucormycosis. Evaluation of neutropenia was done without any conclusive results, including her bone marrow being normal. GIFT test was not done as it was not available at our institution. Her neutropenia was detected as patient had multiple admissions in past for LRTI, left lower limb non healing ulcer, gluteal abscess. Patient was started on GCSF and corticosteroid due to severity of neutropenia and associated recurrent fever, due to refractory disease she was also given rituximab. Her total count started improving postrituximab, unfortunately following few days she succumbed to death due to rhinorbital mucormycosis as a result of her immune suppressed state and diabetes mellitus. **Conclusion:** The etiologies of neutropenia are vast, amongst them "autoimmune" is unusual. Neutropenia can predisposes to serious infections. Mucormycosis is medical emergency and warrants immediate attention.

30. Uncommon Nonfermenting Gram-negative Bacillary Bacteremia in Intensive Care Unit Patients: Lessons Learnt.

Sai Saran

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Background: Nonfermenting Gram-negative bacillary (NFGNB) bacteremia other than *Pseudomonas* and *Acinetobacter* species are occasionally reported in critically ill patients due to advancement of automated culture methods. Managing these patients poses a challenge due to varied intrinsic resistance to commonly prescribed antimicrobials. **Objective:** To study the clinical characteristics and outcome of ICU patients having uncommon NFGNB bacteraemia. **Materials and methods:** This retrospective study was done in 20-bed ICU at a tertiary care university hospital in north India. Electronic based data was searched for all blood cultures done during study period (September 2016–August 2018); and the clinical characteristics and outcomes were recorded for adult patients who had uncommon NFGNB (other than *Pseudomonas* and *Acinetobacter* species) bacteremia. Data was represented as median with interquartile range (IQR). Mann–Whitney *U* and Fischer exact test were used appropriately using SPSS-23, IBM, Chicago, USA. As sample size was small, Cohen's *d* (effect size) which is ratio of mean difference and pooled standard deviation between the groups was calculated: small size (≤0.2), medium size (>0.2 to <0.5) and large size (≥0.5), respectively. **Results:** Fifteen adult patients had uncommon NFGNB bacteremia. Four patients each had *Burkholderia cepacia* and *Chryseobacterium indologenes*, two patients each had *Sphingobacterium* species and *Elizabethkingia meningoseptica*, one each had *Morganella morganii*, *Ralstonia pickettii* and *Stenotrophomonas maltophilia*, respectively. Organisms isolated in these cases were resistant to commonly used antimicrobials in ICU (penicillins/cephalosporins/carbapenems/aztreonam/aminoglycosides/polymyxins). The analysis of survivors and nonsurvivors showed significant difference in duration of antimicrobial therapy prior to event day (8 days vs 17 days, $p = 0.01$) with large effect size (*d*: 2.3), APACHE II score (19 vs 26, $p = 0.19$), SOFA score (8.5 vs 15, $p = 0.46$) and length of ICU stay (29.5 vs 34 days, $p = 0.28$), respectively. **Conclusion:** Uncommon NFGNB bacteremia are resistant to commonly used antimicrobials in ICU. Patients who developed these infections after prolonged exposure to antimicrobials had poor survival.

31. Study of High-dose Ascorbic Acid on Vasopressor's Requirement in Septic Shock Patients: A Surgical Intensive Care Unit Study.

Manjaree Mishra

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Objective: Previously very limited studies on effects of ascorbic acid on hemodynamic parameters of septic shock were evaluated in nonsurgical critically ill patients. In this study, we evaluate the effect of high-dose ascorbic acid on vasopressor drug requirement in surgical critically ill patients with septic shock. **Materials and methods:** A total 30 patients were included in the study with a period of six months. Patients with septic shock who required a vasopressor drug to maintain mean arterial pressure >65 mm Hg were assigned to receive either 25 mg/kg intravenous ascorbic acid every 6 hours or matching placebo for 72 hours. The primary outcome of the study was vasopressor dose and duration and the secondary outcome was duration of ICU stay and 28-day mortality. **Results:** Total 30 patients were included in the study and were divided into two groups of 15 each. Mean dose of norepinephrine during the study period (7.32 ± 2.88 µg/minute vs 12.48 ± 5.81 µg/minute, $p \leq 0.001$) and duration of norepinephrine administration (48.33 ± 24.18 hours vs 70.33 ± 4.86 hours, $p < 0.001$) were significantly lower in the ascorbic acid than the placebo group. The mean duration of ICU stay in ascorbic acid group was 20.32 ± 9.32 and placebo group was 19.88 ± 8.74 days which was statistically insignificant. The 28-day mortality was significantly lower in the ascorbic acid than the placebo group (14.28% vs 64.28%, respectively; $p = 0.009$). **Conclusion:** In our study we conclude that high-dose ascorbic acid may be considered as an effective and safe adjuvant therapy in surgical critically ill patients with septic shock.

32. Effect of Breakpoint and Minimum Inhibitory Concentration (MIC) Ratio on Outcome of Patients Admitted in Intensive Care Unit (ICU).

Saswati Sinha

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Objective: To assess impact of efficacy ratio (breakpoint/MIC) of an antibiotic on outcome of infection due to Gram-negative bacteria (GNB). **Materials and methods:** Prospective observational study, done in ICU and Microbiology Department of a tertiary-care hospital in India between July 2018 and March 2019. Database of ICU and Microbiology Department were used as data source. All patients admitted to ICU during study period with documented GNB associated infection were included. Variables collected—age, sex, APACHE IV score, MIC values of prescribed antibiotics, ICU mortality and ICU length of stay (LOS). Efficacy ratios were categorized into four groups—<1, 1–2, 2–4 and >4. The data was analyzed using SPSS software. **Results:** Of total 274 patients, majority were males ($n = 148$, 54%). Mean age was 69.7 ± 12.9 years; mean APACHE IV score was 67.9 ± 27.3. *Klebsiella pneumoniae* was the commonest isolated GNB ($n = 113$, 41.2%) followed by *Escherichia coli* ($n = 65$, 23.7%). Overall ICU mortality rate was 16.8%, and mean ICU LOS was 6 days (IQR 3–6). Majority (44.9%) patients received meropenem. Significantly more patients received mono antibiotic therapy than combination antibiotic therapy (61.7% vs 38.3%; $p = 0.02$). 69.2% patients had an efficacy ratio >4 in the mono antibiotic therapy group, and 49.2% patients in combination antibiotic therapy group had efficacy ratio >4. Among patients who received mono antibiotic therapy, mortality was significantly less in the efficacy ratio group >4 compared to the 2–4 group (14.2% vs 50%; $p = 0.008$). This however did not hold true in the combination therapy group ($p = 0.3$). For patients receiving mono antibiotic therapy, mean ICU LOS was lowest in >4 efficacy ratio groups (7.3 ± 7 days); mean ICU LOS in combination therapy group was lowest in efficacy ration 2–4 group (7 ± 4.3 days). **Conclusion:** Efficacy ratio >4 was associated with better outcome in patients receiving mono antibiotic therapy.

33. Correlation of Neutrophil CD64, PCT and CRP with Clinical Profile in ICU Patients with Sepsis/Septic Shock.

Rupali Patnaik

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Objectives: Biomarkers have both diagnostic and prognostic utility in critically ill patients. Neutrophil CD64 is evolving as a prognostic biomarkerin ICU patients. The primary objective was to correlate serial levels of biomarkers CD64, PCT and CRP with mortality during ICU stay. **Materials and methods:** It is a prospective observational study carried out after Institutional Ethics Committee approval (IEC code: 2018-20-DM-102) in a 20 bedded mixed medico-surgical ICU

from December 2017 onwards. Adult patients of age >18 years with sepsis or septic shock were included. Sepsis and septic shock were defined as per sepsis 3 criteria. Demographic and clinical parameters along with APACHE II and SOFA score were measured at admission. Biomarker levels were measured serially at admission, on day 4 and on day 8 of ICU stay. Clinical and laboratory parameters along with SOFA score were also measured during that time periods. **Results:** Sample size was estimated as 60 patients. Data of 46 patients is being presented as preliminary analysis. All parameters were compared between survivors and non survivors. Demographic parameters were comparable between two groups. Predictors of mortality was evaluated using binary logistic regression analysis. Increased CD64 and CRP levels between baseline and day 8 and increased number of days with septic shock were found to be significant predictors of ICU mortality. Though there was decreasing trend in levels of all three biomarkers between baseline and day 4 amongst survivors, it was not statistically significant. On multivariate analysis decrease in CD64 and CRP between baseline and day 8 and less days of septic shock were significant ($p < 0.05$) predictors for survival. **Conclusion:** Serial decrease in level of biomarkers CD64 and CRP from baseline to day 8 can be significant predictors of survival during ICU stay. Larger trials are needed to confirm the results.

34. Vitamin C Therapy or Routine Care in Septic Shock (Victor) Trial.

Zubair U Mohamed

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Objectives: Preclinical and retrospective studies have found mortality benefit in using high-dose vitamin C in sepsis. This study aimed to prospectively evaluate the effect of hydrocortisone, intravenous vitamin C (ascorbic acid) and thiamine (HAT) in reducing all-cause mortality among patients with septic shock. **Materials and methods:** After obtaining Institutional Ethics Committee approval, this prospective open-label randomized control study, divided patients with primary ICU admitting diagnosis of septic shock into two groups based on a computer-generated randomization code. Although groups received routine care, the intervention group (HAT) also received intravenous vitamin C (1.5 g Q6H), thiamine (200 mg BD) and hydrocortisone (50 mg Q6H) within 6 hours of onset of septic shock and continued for atleast 4 days. Vitamin C was infused over 60 minutes using a photolysis preventing infusion set. Thiamine and hydrocortisone use in control arm was according to clinician's discretion. The primary outcome evaluated was all-cause hospital mortality. Our hospital mortality for septic shock is 55%. To obtain a 30% absolute risk reduction in mortality (as observed from retrospective published data) with 80% power and alpha error of 0.05, a total of 82 patients will be required. Trial registration: CTRI/2018/07/014787. **Results:** Total of 86 patients (43/group) were enrolled between June 2018 and August 2019. Baseline characteristics at ICU admission were comparable between groups. All data presented as control: HAT. Mean age (years) 59.95 ± 13.9:59.58 ± 14.5; male (%) 32 (74.4):29 (67.4); SOFA on admission 10.89 ± 3.78:11.2 ± 3.06. The hospital mortality was 53.5% (23/43) and 55.8% (24/43). The ICU mortality was 44.4% in both groups. The mean time to shock reversal was 2.90 ± 0.75 days and 2.95 ± 0.75 days. ΔSOFA@72 hours were 7.93 ± 4.93 and 7.85 ± 5.68. No values were found to be statistically significant between groups. **Conclusion:** High dose intravenous vitamin C, thiamine and hydrocortisone in the dose and duration used did not affect hospital mortality in patients with septic shock.

35. Effect of Atorvastatin on Incidence of VAP in a Trauma Critical Care Unit: A Single Centric, Prospective, Double Blind, Investigator Initiated, Placebo based, Randomized Controlled Clinical Trial.

Das B Prasad

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Objectives: Ventilator associated infection (VAP) is the predominant nosocomial infection (NCI) occurring in trauma ICUs, which is a matter of challenge, especially in the era of antibiotic-resistance.[1] Although, there is a growing interest of statin for multivariate use in ICU (owing to its promising anti-inflammatory, antioxidant and probable antibacterial effect, apart from usual lipid-controlling effect), there are no good *in vivo* studies in critically-ill trauma patients, till date. So, we proceeded with an aim to evaluate the efficacy of *in vivo* use of 20 mg single dose atorvastatin in a tertiary care trauma ICU setting to prevent VAP. **Materials and methods:** After Ethics Committee approval and written informed consent from patients/relatives, a single-centric, prospective, double-blinded, cross-over, clinical comparative interventional study was conducted from August 2018 to April 2019 in the two ICUs, Department of Anesthesia, Traumacenter, IMS-BHU, where all the patients admitted to trauma ICU within 2 days of admission, were allotted into one of the 2 study groups based on the study drug used (group I: atorvastatin 20 mg single-dose or group II: placebo 20 mg). One hundred and forty patients were admitted in an alternate manner into both the ICUs. After a period of 3 months, the ICUs were crossed over wrt use of study drug. Primary outcomes noted were incidence of nosocomial infections (VAP) and mortality; secondary outcome noted was synergistic effect with carbapenems. Chi-square/Student *t* test were used for qualitative/quantitative data, respectively. Statistical significant difference declared when *p* value ≤ 0.05. **Results:** Demographic parameters were comparable. Incidence of NCIs were lower with atorvastatin (VAP-26 out of 70 vs 42/70, $p = 0.01$; CLABSI-14 vs 37, $p = 0.004$; CAUTI-16 vs 31, $p = 0.03$), less fungal infections (9 vs 32, $p < 0.001$), but without 30 day-mortality benefit (26 vs 32, $p = 0.06$). There was not only less carbapenem resistance in group I, but also less need to escalate to colistin ($p < 0.001$). **Conclusion:** Use of atorvastatin in trauma ICU, not only, decreased the incidence of VAP, but also contributed to a favorable ICU flora with less need of escalating to higher antibiotics, though, without any mortality benefit.

36. Hygiene Quality Improvement Initiative in a Pediatric Emergency: A Pre and Postintervention Study.

Suresh K Angurana

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Objectives: To study hand hygiene compliance rate among healthcare providers (HCPs)working in pediatric emergency before and after hand hygiene quality improvement initiative. **Materials and methods:** The baseline hand hygiene compliance rate was recorded by auditors among HCPs [nurses, junior residents (JRs), senior residents (SRs), faculty, and sanitary and hospital attendants] working in 3 different areas of pediatric emergency [pediatric emergency, neonatal unit in pediatric emergency (NUPE)-1 and 2] as well as patient's attendants from May to July 2018. Then from August to September 2018, the quality improvement initiative was started including education and training of all HCPs working in pediatric emergency by small lectures, posters, group discussions, power point presentations, reminders and reinforcement, and performance feedback. During this phase, the hand hygiene compliance was also noted by auditors. **Results:**

The total hand hygiene opportunities recorded during pre and postintervention phases were 1,068 and 670, respectively. Overall, there was increase in hand hygiene compliance rate from 33% to 54% from pre to postintervention phase ($p = 0.0001$). In different locations in pediatric emergency, the hand hygiene compliance rate also showed significant increase: pediatric emergency (30–46%, $p = 0.0001$), NUPE-1 (36–67%, $p = 0.0001$), and NUPE-2 (34–47%, $p = 0.029$). Among different HCP, there was significant increase in hand hygiene compliance rate in postintervention phase: nurses (43–55%, $p = 0.007$), JRs (21–40%, $p = 0.0001$), SRs (33–61%, 0.0001), faculty (67–73%, $p = 0.53$), and sanitary and hospital attendants (23–50%, $p = 0.001$). The hand hygiene compliance rates also increased among patient's attendants (22–53%, $p = 0.0001$). **Conclusion:** Hand hygiene quality improvement initiative significantly improved hand hygiene compliance rate among HCPs working in different areas of pediatric emergency. Quality improvement initiatives to improve hand hygiene compliance rate among HCPs working in pediatric emergency are challenging to implement but are rewarding as there is lot of scope for improvement.

37. Ventilator Associated Events: A Prospective Study of Incidence and Relationship with Ventilator Associated Pneumonia.

Neeru Sahni

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Objective: The Center of Disease Control and Prevention (CDC) introduced definition of ventilator-associated events (VAE) in 2013 to replace ventilator-associated pneumonia (VAP) definition. The VAE definition algorithm has three tiers: ventilator-associated condition (VAC), Infection related ventilator-associated complication (IVAC) and possible ventilator-associated pneumonia (PVAP). The objectives of study were: (i) To calculate incidence of VAC, IVAC and possible VAP as per CDC VAE algorithm; (ii) Incidence of VAP as per VAP definition. To compare the above in terms of predictive value and sensitivity of VAE definitions for VAP. **Materials and methods:** A prospective cohort study was conducted from July 2018 to June 2019 in ICU of PGIMER, Chandigarh which is a twelve bedded medical ICU. All patients with more than 48 hours of mechanical ventilation were included. The demographic data, APACHE II at 24 hours of admission, days of mechanical ventilation, length of ICU stay and outcome of patients were recorded. The patients were screened for both, VAP and VAE. **Results:** Out of a total of 407 patients, 305 patients were included with 4,079 patient days and 3,122 mechanical ventilation days. Incidence of PVAP, IVAC, VAC and VAP was 1.6, 5.76, 8.96 and 7.36 per 1,000 ventilator days, respectively. Sensitivity, specificity, positive predictive value and negative predictive values of diagnosing VAP in relation to VAE are:

	Sensitivity (%)	*Specificity (%)*	*Positive predictive value (%)*	*Negative predictive value (%)*
VAC	60.8	95.03	50	96.7
IVAC	47.8	97.5	61.1	95.8
PVAP	13.0	99.2	60	93.3

Kendall's *W* test showed that there was no concordance between VAP and VAE.

Conclusion: The study concludes that there is no concordance between cases identified as VAE and VAP. Therefore, both definitions should be used in tandem. A comprehensive bundle of care targeting prevention of VAE as well as VAP should be developed.

38. C-reactive Protein/Albumin Ratio as a Predictor of 28-day Mortality in Patients with Sepsis.

BT Hamsa

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Background: Sepsis is defined as life-threatening organ dysfunction caused by a dysregulated host response to infection. Sepsis remains a major cause of morbidity and mortality worldwide. The inflammatory response is important in the pathophysiology of sepsis, higher degree of inflammation can worsen chronic illness, which is a major determinant of adverse, long term outcomes. Important biomarkers that can be used as prognostic markers in sepsis are C reactive protein (CRP) and serum albumin levels. CRP levels markedly elevate in response to infection whereas albumin levels decrease in response to acute phase infection. We want to ascertain the value of CRP/albumin ratio as an independent predictor of 28 days mortality in sepsis patients. **Materials and methods:** A prospective study was conducted including 150 patients aged more than 18 years, satisfying the criteria for sepsis according to SOFA score of more than 2 (according to surviving sepsis campaign 3) who were admitted to medicine department of RL Jalappa Hospital. Patients with pre-existing organ dysfunction prior to infection (chronic kidney disease, decompensated liver disease) were excluded from the study. Initial CRP/albumin ratio was assessed to determine its significance in assessing the 28-day mortality, primary end point of our study. Secondary end points assessed were length of ICU stay, need for inotropic support, need for ventilator support and renal replacement therapy. **Results:** In the analysis of CRP/albumin ratio as a predictor of 28-day mortality, patients were followed up from day of admission till 28 days to assess primary outcome. Among study participants survivors were 92 (61.3%) among whom mean admission CRP/ALB ratio was 0.1197 with standard deviation of 0.1093. Non survivors were 58 (38.7%) patients with mean CRP/ALB ratio was 0.0426 with standard deviation of 0.0191. p value < 0.001, there was statistically significant difference found between survivor and non survivor with respect to CRP/albumin ratio. In assessing secondary outcome statistically significant association was found for need for ventilator and inotropic support, whereas it was insignificant in assessing need for renal replacement therapy and length of ICU stay. **Conclusion:** CRP/albumin ratio, which indicates the extent of residual inflammation, could be used as a prognostic marker in predicting mortality in patients with sepsis and septic shock.

39. Educational Program along with Motivational Interviewing to Increase Hand Hygiene Adherence in Multidisciplinary ICU in a Tertiary Care Center in India: A Prospective Study.

Sumalatha Arunachala

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Objectives: Primary: whether educational program targeting change in behavior of healthcare workers will improve hand hygiene compliance and decrease hospital-acquired infection rates (HAI). Secondary: assessment of hand hygiene compliance among doctors in tertiary care center in India. **Materials and methods:** Study period included 3 months each of preintervention, intervention and postintervention. Hand hygiene compliance was assessed by indirect data on product use. Compliance of doctors was assessed by direct assessment method. HAI rates were recorded in each month. Educational program included teaching sessions on hand hygiene, videos on importance of hand hygiene were continuously

displayed during the 3-month period. Motivational interviewing was done in groups. **Results:** A total of 650 opportunities were observed. The total compliance of doctors were 41.8 ± 22.4% (mean ± SD), 42.3 ± 26.8% and 40.41 ± 31.3% in preintervention and 64.9 ± 31.9%, 70 ± 34.7%, and 60.62 ± 35.2% in postintervention. Multilevel mixed effects linear regression analysis of compliances over time was performed. The total compliance improved by 5.95%; 95% CI 2.9–8.9 ($p < 0.001$). The baseline compliance in residents was lower than that of the consultants. However, the improvement in total and effective compliance of residents were more than that of consultants by 4.05%; 95% CI 0.33–7.7% ($p = 0.032$) and by 6.46%; 95% CI 3.53–9.39 ($p = 0.032$), respectively by 5th month. All doctors were in contemplation phase of change and entered action phase after intervention. Wilcoxon rank-sum test showed no difference between ABHR use ($p = 0.521$) and soap use ($p = 0.512$) before and after intervention. However, there was statistically significant decrease in VAP and CAUTI rates ($p = 0.0495$ for both rates) but no difference in CLABSI rates ($p = 0.184$). **Conclusion:** A multimodal strategy of education and motivational interviewing was effective in improving hand hygiene compliance among doctors. It is uncertain whether the same is useful in reducing hospital acquired infections.

40. Utility of High Fluorescence Lymphocyte Count (HFLC) and Various Parameters from Hematology Analyzer to Give Preliminary Diagnosis of Dengu, Other Viral Infections and Bacterial Infections.

Shweta R Chandankhede

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Objective: To determine if high fluorescence lymphocyte count (HFLC), scatter diagram various parameters from hematological analyzer like nucleated RBC, immature granulocyte and left shifts can be used as initial screening test to narrow the diagnosis of dengue, other viral infections and bacterial infections. **Materials and methods:** One thousand febrile patients admitted to ICU between June 2019 and September 2019 were tested for full blood count (SYSMEX XT 4000 i), dengue NS1 and serology, other tropical serology and cultures. Hematology analyzer reported HFLC population, identified based on granularity and the high fluorescence signal as well as number of NRBC, immature granulocye and left shifts in 10 minutes. **Results:** Using Mann–Whitney *U* test. **Conclusion:** Full blood count is a routine test for febrile patients. Additional parameter reported by hematology analyzer are potentially helpful as preliminary diagnosis various febrile illness. In our study, a threshold HFLC value of $0.2 \times 10^3/\mu L$ which is available in 10 minutes as compared to rapid tests which take minimum of 1.5 hours can be incorporated as triage for febrile patients before further confirmatory tests for dengue to be performed.

	Parameters	*Inter quartile range*	*Median*
Dengue NS1 positive *n* = 189	Lymohocytes ($\times10^3/\mu L$)	0.88–2.10	1.35
	PLT ($\times10^3/\mu L$)	121–242	210
	HFLC ($\times10^3/\mu L$)	0.01–0.20	0.10
	Immature granulocyte (%)	0.0–0.01	
	NRBC	Nil	
	Left shift (%)	0–1	
Dengue serology positive (IgM, IgG) *n* = 278	Lymohocytes ($\times10^3/\mu L$)	0.86–1.85	1.38
	PLT ($\times10^3/\mu L$)	23–119	59
	HFLC ($\times10^3/\mu L$)	1.23–7.80	4.20
	Immature granulocyte	0.0–0.02	
	NRBC	Nil	
	Left shift (%)	0–2	
Dengu NSI, IgM, IgG negative *n* = 533	Lymohocytes ($\times10^3/\mu L$)	0.59–1.39	0.98
	PLT ($\times10^3/\mu L$)	76–132	102
	HFLC ($\times10^3/\mu L$)	0.01–0.20	0.56
	Immature granulocyte (%)	3–6	
	NRBC (%)	20–32	
	Left shift (%)	28–45	

41. Peritoneal Dialysis in Pediatric Postoperative Cardiac Surgical Patients.

C Bipin

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Background: We determined the prevalence of acute kidney injury requiring peritoneal dialysis (PD), the factors associated with early PD initiation, prolonged PD and mortality among pediatric postoperative cardiac surgical patients. **Materials and methods:** The hospital records of 23 children, aged 12 years or younger, who had undergone cardiac surgery and required PD subsequently, during a 1-year period were reviewed. Demographic data, intraoperative variables, and postoperative complications were compared between survivors and nonsurvivors of PD, between the short and long duration PD groups, and between the early and late PD initiation groups. **Results:** Six hundred and eight pediatric patients who underwent open heart surgery were enrolled in this study. Twenty three (3.78%) of them required PD. When compared with survivors (n = 11), nonsurvivors (n = 12) were more likely to have a higher serum procalcitonin (p = 0.01), higher serum potassium on day 2 (p = 0.001), day 3 (p = 0.04), day of termination of PD (p = 0.001) and a lower urine output on day 3 of PD (p = 0.03). Prolonged PD was associated with time of PD initiation (p = 0.01), a higher postoperative serum creatinine on day 3 (p = 0.01) of PD initiation as well on the day of PD termination (p = 0.01) and the final outcome in terms of survival (p = 0.02). Factors significantly associated with an early PD initiation were CPB time (p = 0.04), sepsis (p = 0.02) and shorter PD duration (p = 0.003). **Conclusion:** Peritoneal dialysis is very useful mode of renal replacement therapy among pediatric postoperative cardiac surgical patients. The intraoperative and postoperative variables have important association with the time of PD initiation, PD duration and patient survival. **Keywords:** Cardiopulmonary bypass, Pediatric cardiac surgery, Peritoneal dialysis, Postoperative period.

42. Role of Ultrasonography (Point of Care Ultrasound) in the Detection of Retropharyngeal Abscess in a District Hospital Intensive Care Unit.

Mohammad Faiz

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Introduction: Intensive and critical care medicine has gone through unprecedented development over the last few decades. The most difficult part of it involves getting the correct diagnosis and delivering immediate treatment. At this point, there is no current protocol for point of care ultrasound (POCUS) in sepsis. The potential benefits of POCUS for sepsis include infection control, hemodynamic monitoring and treatment guidance. This case illustrates the usage and importance of ultrasonography in detecting retropharyngeal abscess. **Objective:** We report our experience using neck ultrasound as an adjunct to facilitate in locating source of sepsis. **Case description:** Forty eight-year-old gentleman with no known medical illness, presented with vague symptoms of fever, cough and lethargy. Clinically, he was drowsy, tachypneic, septic and dehydrated and diagnosed as severe diabetic ketoacidosis and septic shock. He was admitted to the intensive care unit for continuation of care, where POCUS was performed which located source of infection over the neck. **Results:** He had leucocytosis, acute kidney failure with high creatine and hyperuricemia, bedside neck ultrasound revealed a hypoechoic ill-defined lesion with moving sediments over the retropharyngeal space extending to the visceral layer of the thyroid gland. Contrast-enhanced computed tomography (CECT) of the neck confirmed a retropharyngeal abscess extending to the mediastinum and thyroid gland. **Conclusion:** This case illustrates the importance of the use of ultrasonography in detecting a case of retropharyngeal abscess. We believe by practicing POCUS, the treating clinician can translate the findings clinically, which will then improve patient management and outcome.

43. Central Venous Oxygen Saturation ($ScvO_2$) for Outcome Prediction in ICU.

Minal Harde

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Background: Central venous oxygen saturation measurement ($ScvO_2$) is a surrogate for mixed venous oxygen saturation measurement (SvO_2). Does it have any outcome prediction value? **Materials and methods:** The aim was to observe the measured values of $ScvO_2$ in critically ill patients and their association with the outcome. Institute's Ethics Committee approval was taken. All patients received early goal directed therapy as per the institution protocol $ScvO_2$ was measured in all patients intermittently during their hospital stay. Hemodynamic parameters, investigations and APACHE II score were also noted. The clinical end point of study was survival or death of patient. **Study design:** It was a prospective observational study carried out in the intensive care unit (ICU). SPSS Version 17 was used for analysis. Receiver operating characteristic (ROC) curve was plotted for mean $ScvO_2$ (mm Hg) by outcome (death) to get cutoff. **Results and conclusion:** Total 100 patients were studied and mortality was 44%. The mean $ScvO_2$ in nonsurvivors was 53.34 ± 4.08 which was statistically significantly lower than in survivors 73.33 ± 5.03 (Mann–Whitney test, p value 1.38×10^{-17}). Area under the ROC curve was 1.000. $ScvO_2$ shows high sensitivity (100%) and high specificity (100%) if mean $ScvO_2 \leq$ 63.33 in predicting outcome (death). Thus, the optimal $ScvO_2$ cutoff value for outcome prediction was ≤63.33. $ScvO_2$ is highly sensitive and specific measure for predicting mortality in intensive care patients.

44. Retrospective Observational Study of Clinician's Adherence of Prescribing Anticoagulant in Documented Atrial Fibrillation Patients Admitted for Other Reason.

Subhadeep Chakraborty

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Objective: To evaluate whether patients with atrial fibrillation are prescribed anticoagulant treatment whenever indicated as per CHA2DS2VASc score. **Materials and methods:** Data from 136 patients with atrial fibrillation and CHA2DS2VASc score ≥2 for women and ≥1 for men, were collected during the period of 2 months November to December 2018 from Medica Superspecialty Hospital, Kolkata. Patients with above CHA2DS2VASc score getting anticoagulation, or having documented reason for not getting the same was set as the standard practice. The same group of patients was also assessed for not using antiplatelet therapy, or concurrent use of antiplatelets with anticoagulants for individual specific reasons. Compliance with these four standards was evaluated to derive the results. **Results:** 22.5% of the patients included in the audit were not prescribed any anticoagulants. Among them 88% had their reason documented on discharge summary or hospital notes. The most common reason for not prescribing an anticoagulant was risk of bleeding although HAS-BLED score was not mentioned in more than half of those notes. Twenty nine

percent of the patients not getting anticoagulants were getting antiplatelets, primarily because of cardiological indications. Majority of concurrent use of antiplatelets with anticoagulants was after the recommendation of a specialist. **Conclusion:** Atrial fibrillation is a common type of arrhythmia with incidence of ≥1 of the adult population in developed countries and cerebral stroke remains the major complication. It is still under-diagnosed and use of oral anticoagulants is even less. There is urgent need for improved prescribing of anticoagulants when indicated and documentation of reason when not prescribed. People who are not taking anticoagulants should have their stroke and bleeding risk reviewed annually. There is potential for further re-audit to review the adherence to anticoagulation norms in atrial fibrillation patients.

45. Comparative Evaluation of Ultrasound Guided Supraclavicular and Infraclavicular Subclavian Venous Catheterizations in Adult Patients.

Tanvir Samra

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Objectives: Ultrasound-guided subclavian vein cannulation has two approaches; supraclavicular and infraclavicular. The efficacy and complication rate with the two has been compared in pediatric population. The aim of this study was to compare the ease of cannulation by recording the puncture time of subclavian vein using ultrasound-guided supraclavicular and infraclavicular approaches in adult patients. **Materials and methods:** This study was approved by our Institutional Ethics Committee, and written informed consent was obtained from the patients. This prospective randomized trial recruited patients aged 18–80 years with definite indications of subclavian vein cannulation from preoperative wards, operating room, intensive care units and postanesthesia care unit of our hospital. Real time in plane ultrasound guided technique was used and subclavian vein was punctured at the junction of the brachiocephalic and IJV in supraclavicular approach and in oblique axis view below the border of clavicle in infraclavicular approach. The puncture time, total time taken for cannulation, first attempt success rate, quality of needle visualization and the complication rates were compared. **Results:** One hundred patients were recruited; 4 excluded and puncture times were compared in 96 patients (48 in each arm) and their values in median (IQR) were comparable in SC [15 (9–39) seconds] and IC [21 (5–80) seconds] group. First attempt success rate was 82.2% and 62.2% with a mean (SD) total access time of 99.11 ± 34.66 seconds and 103.44 ± 50.27 seconds in SC and IC approaches, respectively and these were comparable. Attempts of needle puncture were significantly higher in IC approach (1.40 ± 0.54 vs 1.20 ± 0.46 in SC approach; $p = 0.04$). Successful cannulation was possible in only 45 patients in each group. Complication rate were comparable (<5%). **Conclusion:** Ease, success and safety of catheterization of subclavian vein using USG guided supraclavicular and infraclavicular approaches were comparable. The increased number of needle punctures reported in our study with the IC approach did not translate to an increased complication rate.

46. Effectiveness of Peripheral Intravenous Line in Administering Vasoactive Medications and Hypertonic Saline Infusion in Critically Ill Patients.

Prashant Kumar

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Objective: Assessment of effectiveness and complications of peripheral intravenous infusion of vasoactive medications and hypertonic saline. **Materials and methods:** Approval and waiver of consent from Institution Review Board was obtained, and we conducted this prospective observational study from May 2018 to November 2018 in adult ICU patients receiving 50 µg/mL noradrenaline, 5 mg/mL dopamine and 3% saline through peripheral IV line. Patients already having central venous line were excluded. Visual infusion phlebitis (VIP) score was calculated every 2nd hourly by trained nurses and documented. Need for change of IV cannula and central line was also documented. Data was entered and analyzed in SPSS 20 for windows software. **Results:** Two hundred and eight patients received study drugs during this time period. 144/208 (69.23%) received noradrenaline, 64/208 (30.77%) received 3% saline and 1/208 (0.48%) received dopamine. 40/144 (27.8%) patients in noradrenaline group and 13/64 (9%) patients in 3% saline group needed central line insertion. 16/144 (11.1%) patients in noradrenaline group and 1/64 (0.7%) patients in 3% saline group died. Total 325 cannulas were inserted with a mean infusion duration of 28.75 hours for noradrenaline at a median rate of 0.14 µg/kg/minute and 65.21 hours for 3% saline at a median rate of 23.21 mL/hour. In patients who required central line insertion. Mean time to central line insertion was 11 hours in noradrenaline group and 45.36 hours in 3% saline group. VIP score was 0 for 218/325 (67.07%) cannulas, 1 for 23/325 (7.07%) cannulas, 2 for 83/325 (25.54%) cannulas and 3 for 1/325 (0.31%) cannulas. None of the cases had any major complications. **Conclusion:** Peripheral infusion of noradrenaline and 3% saline is a safe and effective in critically ill patients and its use can avoid central line insertion and its complications in most of the patients. Further larger studies are needed to confirm these findings.

47. Atrial Fibrillation after Intravenous Injection of Ondansetron.

Sindil K Sahu

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Objective: Ondansetron is the preferred drug for the prevention and treatment of postoperative nausea and vomiting. While considered safe, some studies have reported serious cardiovascular adverse effects like ST-T changes and arrhythmias. We report a rare case of new onset atrial fibrillation with the objective of substantiating evidence of cardiovascular adverse effects of intravenous ondansetron. **Case description:** Forty seven-year-old female, a postoperative case of donor hepatectomy for liver transplantation, was receiving 4 mg intravenous ondansetron since the day of surgery for postoperative nausea and vomiting. On postoperative day 3, she complained of palpitation immediately after receiving intravenous bolus of 4 mg ondansetron. Twelve lead electrocardiogram revealed atrial fibrillation which was reverted to normal sinus rhythm in next 10–15 minutes without any active medical intervention. Her past medical history and preoperative cardiac work up was within normal limit except for the hypothyroidism since last six years for which she was taking tablet levothyroxine 50 µg once a day. Preoperative thyroid function tests were also normal. Immediately after this event a 2D-echocardiography was repeated, which was normal. CPK-MB, troponin-I, arterial blood gases and electrolytes were also within normal limits. **Discussion:** Ondansetron is a selective 5-hydroxytryptamine 3 receptor antagonist. Proposed mechanism is inhibition of Bezold–Jarisch reflex, coronary vasoconstriction and unopposed action of other serotonin receptors which may lead to atrial fibrillation and other arrhythmias. **Conclusion:** Though rare, intravenous ondansetron can cause arrhythmias. This could be

related to the speed of intravenous administration or interaction with other drugs like levothyroxine. Further studies are required to better understand contributing factors.

48. Hemodynamic Variations during Hemodialysis.

Vaijayanti Nar

DOI: 10.5005/jp-journals-10071-23353.48

Introduction: Critically ill patients have unstable hemodynamics when presenting to the ICU and/or have a high likelihood to worsen in the ICU. In such instances procedures like hemodialysis and slow low efficiency daily dialysis may subject the patient to high variability in hemodynamics which may cause increased morbidity and mortality in susceptible individuals. No Indian study has prospectively studied the hemodynamic alteration during the initiation of hemodialysis by continuous cardiac output monitoring. **Materials and methods:** The authors of this article set about to understand the various changes in hemodynamics during the initiation of hemodialysis in septic patients with respect to SV, CO, HR, BP, GEDV during dialysis by inserting EV100 continuous cardiac output monitoring system. The authors have also studied functional hemodynamics parameters like SVV and PPV in 10 such patients admitted to the ICU as part of an observational data set. **Results:** It has been noticed that there are significant changes occurring in the hemodynamics immediately after the dialysis has been started. The data will be provided during the final day of abstract presentation. **Conclusion:** This pilot study gives us an estimate of what happens to the hemodynamics when patient is subjected to hemodialysis. Further studying this in another bigger group of patients will help to conclusively target therapy and be prepared for these changes.

49. To Study the Validation of Serum Lactate to Albumin Ratio in Relation to Mortality in Sepsis and Septic Shock Patients.

Mandeep Singh

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Introduction: There is limited data on the utilization of lactate to albumin ratio (L/A) as a predictor of organ dysfunction and mortality in patients with sepsis and septic shock. We have designed this study to evaluate the usefulness of lactate to albumin ratio (L/A) in predicting organ failure and mortality in sepsis and septic shock. **Materials and methods:** This is an observational prospective cohort study over a duration of one and half years (March 2017 to August 2018) in the Department of Critical Care Medicine, Maharaja Agrasen Hospital, Delhi, India. One hundred patients with sepsis and septic shock were enrolled. Serum lactates, serum albumin levels and lactate/albumin ratio and APACHE II score were measured on day 1 of ICU stay. All analysis is conducted using SPSS software and prism for windows. Base line characteristics of quantitative variables between two groups are compared using Mann–Whitney test for continuous and ordinal variables Chi-square test was used for nominal variables. Collinearity among several variables is evaluated using Pearson correlation coefficient. Cut off value is obtained by area under ROC curve. **Results:** The higher serum lactate/albumin ratio associated with more organ dysfunction and correlated with higher APACHE II score (Pearson correlation of 0.458) and *p* value is significant (0.0001), which indicates significant association between APACHE II and lactate/albumin ratio. The area under the ROC curve is 68.1% (*p* value = 0.002) further the threshold value of lactate/albumin ratio for predicting mortality is identified as ≥1.4. This value yields a sensitivity of 63.41%, specificity of 62.71%, PPV of 55.32%, NPV of 71.15% and accuracy of 63%. Number of deaths (63.41%) were more compared to survivors (37.29%) having L/A ratio above 1.4. So, there is statistically significant association between L/A ratio and mortality. **Conclusion:** Serum lactate albumin ratio was good prognostic factor for determination of mortality in sepsis and septic shock patients with statistical significance. There is a positive correlation of serum lactate albumin ratio with APACHE II score in our study. So, the index can be a predictor for mortality in sepsis and septic shock patients.

50. 0.9% Saline vs Plasma-lyte as Initial Fluid in Children with Diabetic Ketoacidosis (Spink Trial): A Double Blind Randomized Controlled Trial.

Vijai Williams

DOI: 10.5005/jp-journals-10071-23353.50

Objective: To study if Plasma-Lyte with lower chloride concentration than saline can reduce incidence of AKI in DKA. **Materials and methods:** This double blind, parallel arm, investigator initiated, randomized controlled trial compared 0.9% saline with Plasma-Lyte as initial fluid in pediatric DKA (>1 month–12 years). The study was done in a tertiary care, teaching and referral hospital in India. Children with cerebral edema, known chronic kidney/liver disease or who had received pre-referral fluids and/or insulin were excluded. Sixty-six children were randomized to receive either Plasma-Lyte (n = 34) or 0.9% saline (n = 32). Primary outcome was incidence of new or progressive AKI, defined as a composite outcome of creatinine (defined by KDIGO), estimated creatinine clearance (defined by p-RIFLE) and NGAL levels. The secondary outcomes were resolution of AKI, time to resolution of DKA, change in chloride, pH and bicarbonate levels, proportion of in hospital all-cause mortality, need for renal replacement therapy (RRT), length of ICU and hospital stay. **Results:** Baseline characteristics were similar in both groups. The incidence of new or progressive AKI was similar in both [Plasma-Lyte 13 (38.2%) vs 0.9% saline 15 (46.9%); adjusted OR (95% CI)—1.2 (0.34–3.41), p = 0.70]. The median (IQR) time to resolution of DKA in Plasma-Lyte and 0.9% saline was 14.5 (12–20) hours and 16 (8–20) hours, respectively. Time to resolution of AKI was similar in both [Plasma-Lyte 22.1% vs 0.9% saline 18.8 hours (adjusted HR—1.72; 95% CI: 0.83–3.54; p = 0.14)]. Length of hospital stay was also similar in both [Plasma-Lyte 9 (8–12) vs 0.9% saline 10 (8.2511) days; p = 0.396]. **Conclusion:** The incidence of new or progressive AKI and resolution of AKI were similar in 0.9% saline and Plasma-Lyte. 0.9% saline was non-inferior to Plasma-Lyte in time to resolution of DKA, need for RRT, mortality and lengths of PICU and hospital stay. **Trial registration:** Clinical trial registry of India—CTRI/2018/05/014042 (ctri.nic.in).

51. Invasive Blood Pressure Measurement at Radial Site Underestimates in Comparison to Femoral Site in Septic Shock Patients.

Bhanuprakash Bhaskar

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Objective: Survival sepsis campaign guideline is silent regarding preferred site of invasive blood pressure (IBP) monitoring; despite some studies showed that radial artery (RA) site underestimates in comparison to femoral artery (FA) site. The aim of our study was to investigate the difference, if any, between radial and femoral IBP in septic shock patients receiving very high dose noradrenaline

(≥0.3 µg/kg/minute). ClinicalTrials.gov: NCT03475667. **Materials and methods:** After ethical approval, adult septic shock patients on very high dose of noradrenaline were included. **Exclusion criteria:** Pregnancy, abdominal compartment syndrome. Systolic (SBP), diastolic (DBP) and mean (MAP) blood pressure were recorded simultaneously for RA and FA site; while keeping transducer for both at same horizontal level with spirit level technique. Data presented as mean (±SD) or median (IQR). Bland–Altman plot was used to present the level of agreement between average and difference values at both sites and correlation of blood pressure difference gradient with dose of noradrenaline was analyzed with Pearson correlation (*r*) plot. **Results:** Thirty nine patients included, age 49 (30–64) years, medical 78%, female 22%, and SOFA score 15 (12–18) on study day. Median dose of noradrenaline infusion was 0.4 (0.3–0.53) µg/kg/minute. The mean of SBP, DBP and MAP (mm Hg) were 123.85 ± 19.69, 60.63 ± 7.05 and 79.84 ± 9.14, respectively for RA site; while it was 126.57 ± 18.28, 62.31 ± 7.54 and 83.32 ± 9.38 for FA site. The mean difference in IBP measurements (in mm Hg with *p* value) between the FA and RA was insignificant for SBP (2.72, $p = 0.76$); while significant in DBP (1.68, $p < 0.001$) and MAP (3.48, $p < 0.001$). We also found that femoral-radial MAP differences had a poor correlation with the dose of nor-adrenaline ($r = 0.05$, $p = 0.76$). **Conclusion:** In septic shock patients on very high dose of noradrenaline, MAP value at RA site significantly underestimates compare to FA site; and the MAP gradient have poor correlation with dose of noradrenaline.

52. Receiver Operator Curve Characteristics and Correlation Coefficient of Base Deficits and Serum Lactate Levels in ICU Patients.

A Chavan

DOI: 10.5005/jp-journals-10071-23353.52

Objectives: Base deficit and serum lactate have both been cited as markers of severity of illness in critically ill patients. It was hypothesized in an undifferentiated population of patients admitted to the ICU with a diagnosis of metabolic acidosis, base deficit and serum lactate would be significantly correlated, and that an increase in base deficit would be able to predict an increase in serum lactate with some degree of sensitivity and specificity. **Materials and methods:** A pilot sample of 100 ABGs was analyzed prior to this study, and standard deviation of serum lactate and base deficits was calculated. And after choosing a conservative correlation coefficient of 0.7 to ascribe significant correlation between the two variables, a sample size of 84 was derived. Eighty six readings were analyzed and two were rejected as they failed external validation. Eighty four arterial blood gases of patients admitted to the ICU with metabolic acidosis were analyzed for correlation. Linear correlation coefficients between serum lactate and pH, base deficit and pH, and base deficit and serum lactate were derived, and receiver operator characteristic curves were calculated. **Results:** Base deficit was found to correlate with pH in patients with a diagnosis of metabolic acidosis. However, correlation of serum lactate with pH was weak inpatients admitted to the ICU ($R^2 = 0.4$). Linear correlation between base deficit levels and a serum lactate ≥2 mEq/L was poor ($R^2 = 0.2$). The receiver operator curve characteristics for the value of base deficit to predict a serum lactate of ≥2 mEq/L with any accuracy was poor with an area under curve for receiver operator curve of 0.61. **Conclusion:** Base deficit and serum lactate are both individually negatively covariant with pH values, but have a very poor correlation with each other, and base deficit does not predict hyperlactatemia.

53. Ensuring Accuracy of Intra-arterial Pressure Recordings with Quantification of Natural Frequency and Damping Co-efficient of the Catheter–Transducer System.

Subramani Kandasamy

DOI: 10.5005/jp-journals-10071-23353.53

Background: The accuracy of intra-arterial pressure measurement is assessed by observing the wave-form of a fast-flush test (FFT). In clinical practice, quantification of the dynamic characteristics of the catheter–transducer system, namely natural frequency (NF) and damping co-efficient (DC) is not done. A study[1] on 1,200 patients with intra-arterial lines demonstrates that in 30% of cases, the recordings are underdamped, leading to overestimation of systolic pressure by 28 mm Hg (mean) and the range of overestimation is from 2 mm Hg to 77 mm Hg. It therefore is important to quantify NF and DC and ensure that they are within acceptable limits to give accurate estimates of blood pressure. **Objectives:** (1) To record fast flush tests in patients with intra-arterial lines. (2) To develop an algorithm to estimate NF and DC automatically from the FFT. (3) To plot DC against NF (Gardner's plot) and determine if they are acceptable to ensure accurate BP measurement. **Materials and methods:** Fifty four hemodynamically stable patients in surgical ICU were recruited. Two FFTs were recorded in each patient using CMCdaq, an in-house data acquisition system. An algorithm was developed to calculate the NF and DC from the FFT. Damping co-efficient for each FFT was plotted against the corresponding NF on the Gardner's plot (Fig. 2) which is the only available standard to assess the acceptability of DC and NF. **Results:** Figure 1 represents a raw tracing of FFT recorded in CMCdaq. The NF and DC calculated by our algorithm are displayed in Figure 1. Plots of DC against NF on the Gardner's plot for all 108 FFTs are shown in Figure 2. In 4 out of 54 patients, the NF and DC were not in the acceptable range as seen in figure. **Discussion:** The general problem is that the catheter–transducer system has a low natural frequency, due to the length of the tubing. Reducing the length of the connecting tubing will increase the NF and improve fidelity of the blood pressure recording.

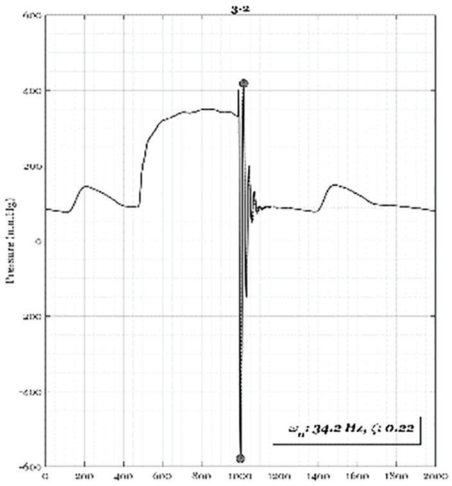

Fig. 1: Raw tracing of fast-flush test from a patient. NF and DC are displayed at the bottom right

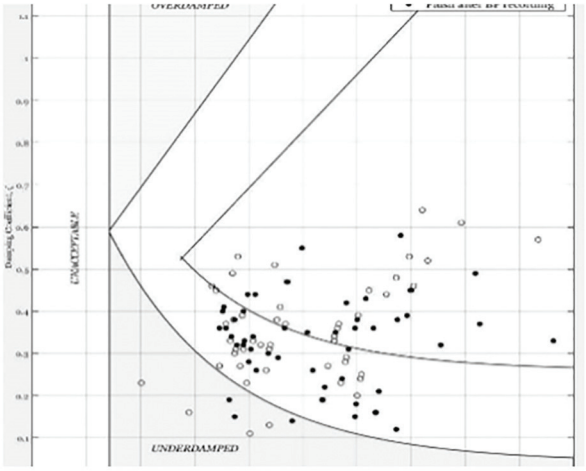

Fig. 2: DC from each FFT is plotted against the NF (Gardner's plot). The open and filled circles represent points from the first and second flush tests in 54 patients

54. Predictive Value of Admission Serum Albumin Levels on Vasoactive Inotrope Score and Fluid Requirements among Critically Ill.

Srikanth Akula

DOI: 10.5005/jp-journals-10071-23353.54

Objectives: To determine the ability of admission serum albumin (SA) to predict the vasoactive inotrope score (VIS), the fluid requirement during the first 48 hours of ICU admission and ICU mortality in patients with septic shock. **Materials and methods:** This was a single-center prospective, observational study conducted in the multidisciplinary ICU of a tertiary, teaching hospital from March to August 2019. Consecutive adult patients (age > 18) admitted with septic shock within 24 hours of onset were included. Baseline data including demographics, co-morbidities, severity of illness and details of organ support of all patients were collected. The patients were divided into two groups: group I—SA ≥ 3 and group II—SA < 3. The association between SA and the VIS score, the total amount of fluids administered, ICU length of stay (LOS) and ICU mortality were analyzed. Age, gender, lactate level, and the target mean arterial pressure were considered effect modifiers. **Results:** Out of 100 patients with shock admitted during the study period, 50 who met inclusion criteria were analyzed. The study groups had a mean age of 57.1 ± 14 years and 61.8 ± 14.4 years, with mean APACHE IV score 108.4 ± 24.8 and 115 ± 18 in group I and group II, respectively. There were no differences between the study groups in VIS, total fluid requirement in 48 hours, ICU LOS and mortality. Low SA group received significantly more isotonic albumin at presentation (11.1% vs 88.9%: $p = 0.002$) and had a non-significant trend towards increased mortality (41% vs 58%; $p = 0.314$). **Conclusion:** Serum albumin does not predict VIS score, volume requirement, ICU LOS or mortality among critically ill patients with septic shock. Patients with low serum albumin tend to receive higher proportion of fluids as isotonic albumin.

55. Prognostic Value of Ultrasound Guided Assessment of Quadriceps Muscle Wasting in Patients with Septic Shock.

Sandeep Gurugubelli

DOI: 10.5005/jp-journals-10071-23353.55

Objectives: To assess prognostic value of change in quadriceps femoris thickness over five days in patients admitted with septic shock and to identify risk factors for muscle wasting. **Materials and methods:** Single center prospective, observational study conducted in the multidisciplinary ICU of a tertiary hospital from January to August 2019. Consecutive adult patients admitted with septic shock within 24 hours of onset were included. Demographics and baseline characteristics including nutrition status, calorie and protein deficit and severity of illness were documented. Ultrasound assessment of quadriceps femoris thickness was done by the study investigator using four-point technique on days 1 and 5. Data concerning risk factors for muscle wasting were gathered. Patients were followed up for primary and secondary outcomes. **Results:** Out of 71 patients screened during the study period, 50 who met inclusion criteria were analyzed. The study population had a mean age of 60 ± 15 years, APACHE IV score of 103.4 ± 27.8 and admission SOFA 7.02 ± 1.4. An absolute reduction in quadriceps muscle thickness was noted in 88% of patients on day 5 of ICU stay. The overall change in muscle thickness was a mean reduction of 5.5 ± 4.3%. Change in muscle thickness was not associated with higher in-hospital mortality. Among the secondary outcomes analyzed, ICU length of stay showed poor correlation with muscle wasting ($-r = 0.281$, $p = 0.04$) and there was no significant association with ventilator free days or ICU free days. Calorie deficit, protein deficit and shock duration were not consistently associated as a risk factor for muscle wasting. **Conclusion:** Mild to moderate muscle wasting during ICU stay is very common in patients admitted with septic shock. Nutritional deficit and shock duration were not consistent risk factors. Muscle wasting to this degree was not associated with worsened mortality or secondary outcomes and risk factors in our cohort.

56. Evaluation of Ventriculo Arterial Decoupling in Septic Shock. A Prospective Observational Study.

N Alok

DOI: 10.5005/jp-journals-10071-23353.56

Objective: Prevalence of ventriculo-arterial decoupling in septic shock. Is there any difference in Va coupling among survivors and nonsurvivors? **Materials and methods:** A prospective observational, single center study with convenient sampling was conducted over 18 months of patients admitted to St Johnuration were not consistent risk factors. Muscle wasting to this degree was not associated with worsened mortality or secpresumed infection and shock with organ failure identified by SOFA score >2. Patients with other etiology for shock state-hypovolemia/cardiogenic/obstructive were excluded. Screening echocardiography was done within 6 hours of patient admission and at intervals of 6 hours (0, 12, 18, 24 hours) with parameters such as LVOTD, VTI, presystolic time, total systolic time, LVEF being measured and SV derived. Other parameters such as HR, SBP, DBP, MAP and vasopressor requirement were collected simultaneously. Ea, EES and ratio calculated using formulae quoted in reference article. Outcome measured in terms of length of stay in ICU, dead or alive at discharge. Regression analysis was done to find out Va difference between survivors and nonsurvivors. **Results:** Data collected in 44 patients, 8/44 (18%) had uncoupling. There was statistically significant difference in Ea ($p = 0.0187$) and EES ($p = 0.0302$) using summary measures between the groups. No difference in the mean Ea/EES ratio between those who survived and those who didn't $p = 0.8513$). **Conclusion:** Septic shock was associated with significant perturbations in the arterial and ventricular elastance and a significant proportion of patients had Va uncoupling. Present study does not show any difference in Va coupling between survivors and nonsurvivors.

57. Comparison of Cost Effectiveness to Run Regional Citrate vs with or without Anticoagulation (Heparin) in Continuous Renal Replacement Therapy.

Rakesh R Gangangari

DOI: 10.5005/jp-journals-10071-23353.57

We compared the cost of continuous renal replacement therapy (CRRT) in critically ill patients using two different anticoagulation strategies: regional citrate and with or without systemic anticoagulation (heparin) in a single-center, analytical retrospective study adult Indian tertiary intensive care unit (ICU). All patients receiving CRRT between April 2019 and September 2019 were included in the study. Costs were modeled using the number of filter sets, number of dialysis bags, amount of citrate, heparin and calcium replacement required, ABGs and cost of monitoring the anticoagulation. The primary outcome was cost associated with CRRT per patient per day. The secondary outcome was efficacy of CRRT. In total, 25 patients were commenced on dialysis CRRT. Eight patients were commenced on regional citrate anticoagulation and seventeen patients commenced with or without systemic anticoagulation (heparin) median filter life.

58. A Predictor against the Predator's Bite.

M Raghaventhar

DOI: 10.5005/jp-journals-10071-23353.58

Objectives: Snake bite is very common in Thanjavur delta districts due to large agricultural activities. Snake bite being a medical emergency warrants early intervention for a better outcome. In our study we aimed to study the relationship between neutrophil lymphocyte ratio and development of complications, hospital stay and outcome. **Materials and methods:** This is a single center case control prospective study conducted in Meenakshi Hospital, Tanjore from August 2018 to August 2019 with a sample size of 52. We correlated clinical outcome with neutrophil lymphocyte ratio. **Results:** In our study among snake bite victims males were 40 and females were 12. The NLR was statistically significant in snake bite patients who developed complications than the victims who developed no complications ($p = 0.03$). Average hospital stay in our group was 10 days. Similarly victims who had higher NLR had a prolonged hospitalization.

59. Association between Urinary Potassium Excretion and AKI Prediction in ICU Patients.

Nikilesh Kumar

DOI: 10.5005/jp-journals-10071-23353.59

Introduction: Acute kidney injury (AKI) occurs in up to 25% of critically-ill patients leading to higher morbidity and mortality especially in patients receiving renal replacement therapy. Many biomarkers have been developed in the recent past but their utility as a bedside risk-stratifying tool remains limited, due to their availability, high cost, and also a slow turnaround time. It is uncertain whether urinary potassium excretion is increased or decreased in AKI. This study has been designed to evaluate the association between urinary potassium excretion and AKI in intensive care unit (ICU) patients. **Aims and objectives:** To study the association of urinary potassium excretion to predict AKI in ICU patients. **Materials and methods:** After taking Institutional Ethical Committee clearance, an informed, written consent was taken from all the ICU patients who fit into inclusion criteria, for measuring urinary indices and renal function tests to conduct the study. In this prospective observational study, the patient's urinary indices along with renal function tests were measured on day 1 and noted. Urinary potassium excretion and creatinine clearance (CrCl) were calculated from 2 hours urine sample. The association between 2 hours urinary potassium excretion and simultaneously calculated CrCl of critically ill patients were assessed using Microsoft Excel, SPSS and their ability to predict AKI in the subsequent seven days by evaluating KDIGO AKI grading (≥stage I). **Results:** Hundred ICU patients were studied with a mean urinary potassium excretion of 4.39 ± 2.52 correlated linearly with CrCl and found to have better prediction to AKI with AUROC value of 0.809 (95% CI 0.719–0.899), with significant p value ($p < 0.05$). Urinary potassium excretion value of 3.49 had a sensitivity of 87% and specificity of 74% in predicting risk of AKI. **Conclusion:** Urinary potassium excretion correlates with CrCl and predicts AKI in ICU patients. The 2 hours urinary potassium excretion can be used as a simple and accessible marker for AKI prediction.

60. Immune Thrombocytopenia: A Gut Feeling.

G Siva Kiran Raj

DOI: 10.5005/jp-journals-10071-23353.60

Introduction: Immune thrombocytopenia is frequently encountered in a critical care setting. Most cases present with bleeding manifestations and remain refractory to platelet transfusions. Refractory cases which do not respond to multiple lines of immune suppression present a challenge in management. Here we describe the case of a young male with steroid refractory immune thrombocytopenia who presented with bloody diarrhea. He was admitted to the MICU with unstable vitals and active gut bleeding. Evaluation of the gastrointestinal bleeding led to a diagnosis of inflammatory bowel disease which provided an explanation for the refractory immune thrombocytopenia (molecular mimicry) and institution of treatment which led to the improvement of thrombocytopenia as well as the gut bleeding. **Objectives:** This case report highlights the importance of critical care medicine in the management of immune thrombocytopenia and re-iterates the need for lateral thinking in cases of multisystem involvement. **Materials and methods:** A 33-year-old male previously diagnosed to have immune thrombocytopenia presented with bloody diarrhea. He was admitted to the MICU in view of tachycardia, hypotension, syncope and bleeding manifestations. He had ecchymoses all over his body but no oral mucosal bleeding. His hemoglobin dropped from 13.2 g/dL to 8.2 g/dL over a period of 36 hours. Total WBC count was 5,600 with normal differential count. Platelet at admission was 5,000/mm^3. Immune thrombocytopenia was managed with platelet transfusions. He received intravenous immunoglobulins with high doses of dexamethasone. There was a transient rise in platelet count to 60,000/mm^3 but the response was not sustained. CT imaging of the abdomen done to evaluate the cause of bleeding, showed edematous bowel loops of the colon with changes suggestive of ulcerative colitis. A guarded colonoscopy was performed under cover of platelets. Unhealthy mucosa was seen with patchy ulceration. A single biopsy sample was taken from the sigmoid colon which on histopathological examination revealed ulceration, in keeping with active colitis. As a consensus decision involving hematology, rheumatology, gastroenterology and critical care medicine, the patient was started on mesalamine, azathioprine and oral prednisolone. Platelets improved to 20,000/mm^3 and

diarrhea completely settled. He had abdominal pain which was managed with antispasmodics. **Results:** Emergent management of immune thrombocytopenia includes intravenous immunoglobulin and steroids and platelet transfusions in case of life-threatening or significant bleeding. The need for lateral thinking to corelate inflammatory bowel disease with immune thrombocytopenia is highlighted. **Conclusion:** Critical care medicine plays an important role in the emergent management of immune thrombocytopenia. We have to try and look for a single hypothesis which explains multiple medical problems that the patient experiences.

61. Comparison of ICU Outcome of Mechanically Ventilated GBS Patients Receiving Intravenous Immunuglobulin or Plasma Exchange.

Uzzwal K Mallick

DOI: 10.5005/jp-journals-10071-23353.61

Introduction: Intravenous immunoglobulin (IVIG) and plasma exchanges (PLEX) are the main modalities of the treatment for Guillain–Barré syndrome (GBS) patients. **Objectives:** The aim of the study was to compare ICU outcome of mechanically ventilated (MV) GBS patients treated with IVIG and PLEX. **Materials and methods:** This prospective cohort study was conducted in a Neuro ICU of Department of Critical Care at National Institute of Neurosciences and Hospital, Dhaka, Bangladesh from January 2017 to December 2018 for a period of one year. All GBS patients under MV treated with either IVIG or plasma exchange were selected as study population who were divided into group I with IVIG (0.4 g/kg/day for 5 days) and group II with PLEX-5 sessions for 10 days in every alternate day. The outcome variables were duration of MV, ICU stay, need of tracheostomy, ICU complications and mortality. The follow-up was done at 6 months. **Results:** Seventy four (74) patients (58 in group I and 16 in group II) were enrolled. The mean age was 30.31 ± 15.47 years and 30.88 ± 12.09 years in group I and group II, respectively, with a male predominance (68.9%). On electrophysiological study the most common variety was acute motor axonal neuropathy (AMAN) (62.2%), acute inflammatory demyelinating polyradiculoneuropathy (AIDP) in 19 (25.7%) patients, acute motor-sensory axonal neuropathy (34.1%) was AMSAN. The mean duration of MV was 21.12 ± 16.55 days and 51.12 ± 35.31 days in group I and group II, respectively ($p = 0.04$). The mean length of ICU stay was 23.66 ± 19.18 days and 60.12 ± 38.79 days in group I and group II, respectively ($p = 0.02$). The need for tracheostomy ($p = 0.001$) and mortality ($p = 0.007$) were less in IVIG group. **Conclusion:** This study revealed there were a significant short duration of MV, short ICU stay and lower incidence of ICU complications and lower mortality in IVIG group compared to PLEX.

62. Clinical Profile of Acute Kidney Injury in Medical Intensive Care Unit at a Rural Teaching Hospital.

Nikhil Darak

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Introduction: Acute kidney injury (AKI) is one of the most common clinical syndromes encountered in clinical practice, which is caused by different etiologies and leads to morbidity and mortality. **Objective:** To study the etiology, clinical manifestations, morbidity and mortality in patients of AKI. **Materials and methods:** All patients admitted to AVBRH in medicine ICU who have been diagnosed with AKI as per the AKIN criteria, between September 2016 and August 2017. Detailed history taking along with physical examination was done in each patient. Investigations like renal function test, urine for albumin and sugar, USG abdomen and pelvis and other relevant investigations were done. **Results:** During the study period, 100 patients were admitted with AKI with average male:female ratio 1.78:1, acute gastroenteritis was seen in 48%. Other etiologies of AKI were septicaemia 16%, and congestive cardiac failure 10%. Vomiting 86% and oliguria 72% were the predominant symptoms in AKI. About 88% of the patients survived. Eighty four percent of the patients were treated conservatively and 16% patients underwent hemodialysis. **Conclusion:** Acute gastroenteritis was the most common cause of AKI. Acute kidney injury is reversible in majority of the cases and enthusiastic treatment and follow-up can reduce both morbidity as well as mortality.

63. Hypokalemic Paralysis a Rare Presentation of Sjogren's Syndrome.

Rahul Hiwanj

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Sjogren's syndrome is a chronic autoimmune disease, typically associated with lymphocytic and plasmocytic infiltration of salivary, parotid and lachrymal gland, leading to sicca syndrome. It can rarely involve non exocrine organs like kidney and present with hypokalemic paralysis due to severe distal renal tubular acidosis. Cases of primary Sjogren's syndrome manifesting for the first time as hypokalemic paralysis caused by distal renal tubular acidosis and nephrogenic diabetes insipidus have been rarely reported. We describe a case of 56-year-old male, who presented in our outpatient department with sudden onset of weakness in all four limbs. On examination he was having (Medical Research Council) MRC grade II power in both lower limbs and grade III power in both upper limbs. On laboratory evaluation, he was having severe hypokalemia, normal serum anion gap metabolic acidosis, positive urinary anion gap with urine PH7. He had polyurea, hypernatremia, high serum osmolarity, low urinary osmolarity, and normal serum ADH level. On examination eyes and mouth revealed severe dryness with positive Shimmer's test. He had positive serology for ANA, SSA, SSB and RO52 antibody. Thus, our patient of Sjogren's syndrome manifested with interstitial nephritis leading to nephrogenic diabetes insipidus and distal renal tubular acidosis (RTA). Distal RTA led to hypokalemic paralysis and nephrogenic diabetes acidosis that caused persistent hypernatremia. He was treated with potassium replacement and other conservative treatment. Also started with immunomodulating drugs like hydro chloroquine. He responded well to the treatment and discharged in stable condition with MRC grade V in all four limbs. He is on maintenance therapy with oral hydro chloroquine. This case illustrates an uncommon presentation of Sjogren's syndrome as hypokalemic paralysis due to distal renal tubular acidosis and nephrogenic diabetes insipidus.

64. An Interesting Case of Aluminium Phosphide Poisoning.

S Sarath Reddy

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Introduction: The most common presentation of aluminum phosphide poisoning is shock with cold and clammy skin, a weak thready pulse and severe hypotension often refractory to vasopressors. Arrhythmias are common in ALP poisoning and are attributed to various causes including hypomagnesaemia. Myocardial depression is also reported in many cases. In ECG cardiac involvement usually manifests as nonspecific ST-T changes.

We report a case of ALP poisoning with myocardial depression which manifested in the ECG as myocardial infarction which is extremely rare. **Case description:** A 55-year-old patient known diabetic admitted with history of aluminum phosphide poisoning. On examination patient had hypotension and patient immediately shifted to ICU and started on vasopressin and noradrenaline and continuous iv fluids given. Magnesium was given according to dosage. Patient had normal ECG initially. After 3 hours patient had atrial fibrillation and patient responded to iv metoprolol. Patient clinically improved over one day and blood pressure improved. Patient had developed ECG changes of T-wave inversion and immediately 2D-echo was done and had LV dysfunction with regional wall motion abnormality of distal IVS and apex. Patient clinically improved over one week and discharged. 2D-echo was repeated after 10 days and it was normal. **Conclusion:** Aluminum phosphide poisoning can result in severe cardiac toxicity. This may be reversible provided the patient can be sustained during the "insult period." At present, no specific antidote for this poisoning is known, and treatment strategy is supportive until the injury induced by the active compound (phosphine) subsides. Patients with severe intoxication benefit from aggressive hemodynamic support, as in our case.

65. Comparison of Incidence Hypophosphetemia and Hypokalemia and the Risk Factors in Critically Ill Patients.

Avijit Das

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Objectives: To define the incidence of hypophosphatemia and compare it with incidence of hypokalemia and various risk factors for development of hypophosphatemia and hypokalemia after ICU admission. **Materials and methods:** It's a prospective observational study conducted over a period of 6 months from April 2019 to September 2019 in patients admitted to a tertiary care ICU. Incidence of hypophosphatemia on admission and development of same after admission was noted and compared with the incidence of hypokalemia. Various risk factors for the development of hypophosphatemia and hypokalemia were defined. **Results:** Chi-square test was performed to compare the incidence of hypophosphatemia and hypokalemia. Total 53% of patients had hypophosphatemia and 40% patients had hypokalemia on admission. Twenty percent and ten percent patients developed severe hypophosphatemia and hypokalemia, respectively after admission. Insulin therapy and sepsis were main risk factors for development of hypophosphatemia and hypokalemia. **Conclusion:** The incidence of hypophosphatemia in our ICU was higher than incidence of hypokalemia. Risk factor for development of both electrolyte deficiency are the same. Potassium is tested in ICU more frequently as compared to phosphorus testing. Thus, incidence of occurrence of hypophosphatemia is missed leading to non-correction of phosphorus deficiency.

66. Plasma Exchange (PLEX) a Promising Treatment Modality in Severe Alcoholic Hepatitis Compared to Historic Controls.

Santhosh Kumar E

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Background and objectives: Steroids have limited benefit in improving survival in severe alcoholic hepatitis (AH) patients. Very severe AH patients (MELD > 30 or DF > 60) have even more dismal survival. Our objective was to study the survival benefit of plasma exchange (PLEX) in treatment of severe alcoholic hepatitis (SAH) patients compared to historic controls. **Materials and methods:** We retrospectively analyzed prospectively collected data on severe AH patients who underwent PLEX in our department from November 2017 to July 2019. The control group was severe alcoholic hepatitis treated with standard medical treatment between October 2014 and March 2015. The need for PLEX, volume and number of sessions were decided on a case to case basis. Informed consent was obtained prior to performing PLEX. Low dose steroids were given from one day prior to PLEX to total duration of 2–4 weeks. **Results:** We had 21 SAH patients who were treated with PLEX and we chose equal number of controls. The baseline characteristics of the PLEX group were age 40.5 years (±9.1), bilirubin 23.6 mg% (7.4–53.6), INR 2.0 (1.37–11), creatinine 1.3 mg% (0.47–6.97), DF score 83.9 (41.9–534), MELD score 30 (21–54), VWF antigen 728% (187–1,391). The control group was well matched except they had bilirubin that was significantly lower at baseline 17.3 mg% (5–37). Plasma exchanges patients underwent 3 (1–7) PLEX sessions and 1.5 (0.6–2) liters of plasma was exchanged per session. The survival of the PLEX group was 16/21 (76.2%) at 1 month and 10/21 (47.6%) at 3 months compared to historic controls 4/21 (19%) at 1 month and 2/21 (9.5%) at 3 months. The odd's ratio calculated for mortality at 1 month and 3 months were 0.29 (0.13–0.65); *p* 0.003 and 0.53 (0.33–0.84); *p* 0.007 for PLEX group. **Conclusion:** Low volume plasma exchange improves short-term survival in patients with severe alcoholic hepatitis.

67. Management of Malignant MCA Stroke in Postop CABG Pt: Case Report.

Atul Sangale

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Perioperative stroke is most devasting complications after coronary artery bypass graft (CABG) surgery entailing permanent disability, 3–6 folds increased risk of mortality and incidence has remained largely unchanged despite advances in surgical techniques. Malignant middle cerebral artery (MCA) stroke is severe form of ischemic hemispheric stroke which occupies more than 50% of MCA territory, extend to other adjacent territories as well. It shows high rate of early mortality (25–80%) and serious neurological sequelae may occur in surviving patients. The phrase time is brain emphasizes that human nervous tissue is rapidly lost as stroke progresses and if such stroke detected earlier and treated timely can cause dramatic clinical improvement. In current case scenario, we emphasize importance of timely diagnosis and treatment can cause significant clinical improvement with minimal neurological disability in malignant MCA stroke in postoperative CABG pt. In this patient we tried mechanical thrombectomy and decompression craniotomy and other supportive measures.

68. Performance of King's College Criteria for Prediction of Mortality in Pediatric Acute Liver Failure at a Tertiary Care Children's Hospital, PICU.

Ravikumar Krupanandan

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Background: Pediatric acute liver failure (PALF) is a potentially fatal condition caused by a varied etiology. The survival of PALF varies according to etiology. King's college criteria (KCC) is used for predicting mortality and listing for liver transplant in PALF in many centers. We did a retrospective case record review for analyzing

the performance of KCC in PALF. **Objectives:** The primary objective of this study was to analyze the performance of KCC in predicting mortality in PALF. The secondary objective was to compare KCC with European criteria of INR >4 for predicting mortality. **Materials and methods:** Case records of children aged between 1 month and 18 years admitted to pediatric intensive care unit from 2014 to 2018 with PALF were reviewed. The demographic and clinical parameters of the patients were noted. Data was analyzed using SPSS 21.0. **Results:** A total of 125 patients with PALF were admitted to the PICU during the study period. The common causes of PALF were indeterminate (23.2%), paracetamol toxicity (20.8%), dengue (17.6%) and metabolic (12.8%). Out of 125, 81 (64.8%) survived, 44 (35.2%) died. Two children underwent liver transplantation and are alive. Out of 44 deaths none underwent liver transplantation, 32 (72.7%) children met the liver transplantation criteria and 12 (27.2%) did not. Out of 79 survivors, 57 (72%) children did not met the criteria and 22 (28%) met the criteria. Positive and negative predictive value of KCC for predicting liver transplant free survival was 39% and 66%, respectively. Positive and negative predictive value of INR >4 for predicting liver transplant free survival was 44% and 76%, respectively. **Conclusion:** Performance of both KCC and INR >4 in predicting morality after PALF was poor in our cohort. Positive and negative predictive value of KCC was inferior compared to INR >4.

69. Bottle Gourd Poisoning.

Rakesh R Gangangari

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Consumption of a glass of bottle gourd juice is thought to work as a health "tonic" and part of traditional healthy living practices in India. The juice may in certain circumstances turn bitter with increased levels of the cytotoxic compound called cucurbitacins. If the bitter juice is consumed it causes a toxic reaction in the gut, leading to abdominal discomfort/pain, vomiting, hematemesis, hematochezia and hypotension which may be rarely fatal. In the absence of clear-cut history regarding the consumption of the bitter bottle gourd juice and the initiation of symptoms, the differential diagnosis for the above symptoms will include diseases causing gastrointestinal bleed with hypotension and/or shock. We report a case of bitter bottle gourd poisoning presenting with abdominal symptoms, hematemesis and shock and with an initial differential diagnosis of septicemia with septic shock and multiorgan involvement.

70. A Case of Dengue Fever in Post Kidney Transplant Patient.

Rakam Kalyan

DOI: 10.5005/jp-journals-10071-23353.70

Background: Dengue is one of the most important tropical disease. Its presentation range from mild disease to severe forms of disease (plasma leakage, thrombocytopenia, dengue hemorragic fever and shock syndrome). Kidney transplant patients living in endemic areas or travel to endemic areas might be affected by disease. All patients post KTP with acute febrile illness dengue should also be suspected. **Case description:** Twenty-year-old male, CKD-ESRD on maintenance hemodialysis, biopsy proven FSGS underwent renal transplantation on 19/9/2019. Patient was doing well postoperatively with good urine output and improving renal parameters. He developed fever on 4th POD. CBP, blood cultures, NS1 antigen test sent and empiric antibiotics started. NS1 antigen turned positive. Patient developed thrombocytopenia followed by increasing drain (perinephric) which was serous initially followed by hemorrhagic drain with drop in hemoglobin and elevated PT/APTT/INR ultrasound/ct showed perinephric collections. Multiple PRBS/FFP/SDP transfused and exploratory laparotomy was performed, intraoperatively diffuse ooze was seen with no obvious bleeder, hemostasis was secured with packing. Postprocedure he again had significant bleeding from drain and was given multiple PRBC/FFP/SDP/cryoprecipitate. He was taken to surgery and packs were removed and blood clots were evacuated. In view of oliguria and metabolic acidosis he was subjected to alternate day dialysis. He continued to be oliguric with hemoglobin becoming stable. Thrombocytopenia and coagulopathy improved. Repeat ultrasound abdomen showed collections posterior to the transplant kidney. He was again reexplored and collections were drained following which urine output started improving. **Conclusion:** Dengue infection in a transplant recipient can lead to severe complications and management difficulties. Recovery can be slow requiring lot of blood and blood products and can cause graft dysfunction. Early anticipation, careful monitoring, clinical assessment and timely interventions can save patient from complex clinical course.

71. Use of Dexmedetomidine for Sedation and Reducing the Dose of Antihypertensives in Eclampsia Patients in the Intensive Care Unit in Comparison with Midazolam.

Wasim Feroz

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This study compares the effectiveness of midazolam and dexmedetomidine for the sedation of eclampsia patients admitted to ICU. **Patients and methods:** Forty women with eclampsia requiring termination of pregnancy by cesarean delivery were randomized in to 2 groups of 20 to receive either midazolam or dexmedetomidine. The midazolam group received a loading dose of 0.05 mg/kg followed by an infusion of 0.1 mg/kg/hour. The dexmedetomidine group loading dose was 1 µg/kg over 20 minutes, followed by continuous infusion at 0.7 µg/kg/hour. Heart rate, blood pressure, Ramsey sedation score, antihypertensive need, convulsion fits and duration in ICU were monitored and recorded all through the ICU stay. **Results:** Dexmedetomidine markedly reduced heart rates for the first 24 hours ($p < 0.05$) compared with midazolam, but there were no differences at 48 hours and 72 hours. Mean arterial blood pressures were similar in the 2 groups ($p > 0.05$), although in the dexmedetomidine group, it was lower at 5, 6, 12, and 24 hours compared with the first 4 hours ($p < 0.05$). Moreover, fewer patients given dexmedetomidine required antihypertensive ($p < 0.05$). The duration of ICU stay was less in the dexmedetomidine group, 45.5 hours (range, 15–118 hours), than in the midazolam group, 83 hours (minimum–maximum, 15–312 hours). **Conclusion:** Dexmedetomidine sedation in eclampsia patients is effective in reducing the demand for antihypertensive medicine and duration of ICU stay.

72. Bedside Sonographic Optic Nerve Sheath Diameter Measurement in Severely Preeclamptic Parturients: A Prospective, Observational Study.

Shiraz M Assu

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Objectives: A simple bedside sonographic measurement of optic nerve sheath diameter (ONSD) has been shown to correlate with

raised intracranial pressure (ICP). This study aims to detect serial ONSD changes in severely preeclamptic parturients admitted for labor and delivery. **Materials and methods:** After ethical approval and written, informed consent 30 preeclamptic parturients with severe features were subjected to serial bedside ONSD measurements by an experienced anesthesiologist at admission (baseline), 4 hours and 12 hours following prophylactic IV $MgSO_4$ therapy and at 24 hours postpartum. An average ONSD value of 5.8 mm was taken as corresponding to an ICP of ≥20 mm Hg. Hemodynamic profile, serum Mg levels, neurological signs and symptoms and mode of delivery were also recorded. **Results:** A total of *n* = 22/30 (73.3%) parturients showed baseline ONSD > 5.8 mm. Of these, neurological symptoms were reported in 68.8% (*n* = 15/22) of patients. Following $MgSO_4$ therapy, even though there was significant increase in serum magnesium and a decline in neurological symptoms, there was no significant decrease in mean ONSD values. There was persistence of high ONSD values even 24 hours postpartum. 14/19 patients who underwent cesarean delivery had elevated ONSD but had no perioperative complications. **Conclusion:** Sonographic ONSD measurement is a simple noninvasive bedside tool to observe intracranial pressure changes in severely preeclamptic parturients, with or without neurological symptoms. It may be a useful aid to guide peripartum triaging and management of these patients.

73. Safety and Efficacy of Cytosorb Hemadsorption in Children with Multiorgan Dysfunction Syndrome.

Sairam R

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Objective: To study safety and efficacy of CytoSorb hemadsorption therapy in children with multiorgan dysfunction syndrome (MODS). **Materials and methods:** This was a retrospective analysis which included children aged between 6 months and 18 years with MODS receiving continuous renal replacement therapy (CRRT) (group I) or CRRT plus CytoSorb therapy (group II) between November 2018 and October 2019. In both groups, patients had similar sequential organ failure assessment (SOFA) and vasoactive-inotropic score (VIS) scores. Patients from group II were further divided into 2 groups based on CytoSorb initiation before (early CytoSorb) or after (late CytoSorb) 24 hours of identification of MODS. The data was collected from hospital records. **Results:** A total of 25 patients were included in this analysis (group I, *n* = 15; group II, *n* = 10). Of the ten patients from group II, six patients were in early CytoSorb and four in late CytoSorb. Among patients who received CytoSorb (group II), the age ranged from 7 months to 14 years and the weight ranged from 6 kg to 56 kg. Overall, there were no complications reported with CytoSorb. The mortality rate was 53.3% in group I and 60.0% in group II (*p* = 534); however, with early initiation of CytoSorb (within 24 hours) the mortality was reported to be 33.3% (*p* = 0.635). Early CytoSorb group had the mean SOFA of 9.5 with 66.7% survival which is an excellent outcome. In group II, at the end of 48 hours, lactate clearance was significant (0.041) with very good reduction in VIS (*p* = 0.052). Reduction in oxygenation index (OI), INR was also observed but not statistically significant. **Conclusion:** This study with limited sample size, showed that CytoSorb is safe and easy to use in children with MODS. Early initiation of CytoSorb resulted in higher survival rates; however, further research is warranted to confirm these results in larger sample size.

74. Wernicke's Encephalopathy: A Rare Complication of Hyperemsis Gravidarum.

Spandan R

DOI: 10.5005/jp-journals-10071-23353.74

Wernicke's encephalopathy (WE) is a rare and life-threatening complication during pregnancy which needs early diagnosis and treatment for better outcome to both mother and fetus. Hyperemesis gravidarum (HG) is a condition of intractable vomiting during pregnancy which rarely leads to Wernicke's encephalopathy. We present a rare case of 26-year female patient who presented with vomiting since 30 days 4–5 episodes per day, altered sensorium since 4 days and bilateral upper and lower limb weakness since 2 days. On examination GCS-E4V4M5, vitals are stable nystagmus present. On motor examination, bilateral upper and lower limbs tone was reduced, deep tendon reflexes are absent power in bilateral upper limb was 2/5 and bilateral lower limb was 1/5. In view of above condition, MRI brain was done which showed bilateral hyper intensity in mammillary bodies, medial thalamus and hypothalamus which is suggestive of Wernicke's encephalopathy, for which we have started on IV thiamine and showed dramatic improvement.

75. An Unusual Case of ITP.

Saurabh Biswal

DOI: 10.5005/jp-journals-10071-23353.75

A 21-year-old female, presented with low grade fever, petechial rash over face, legs and hands, gum bleeding, maroon stools since 6 days. She has generalized weakness since one month. **Past history:** Ileal perforation secondary to enteric fever in 2013 for which a resection—ileostomy-anastomoses was done. HPE showed noncaseating granuloma. TB PCR was negative. She is hypothyroid on treatment. **On examination:** She was conscious alert with stable vitals. She had ongoing gingival bleeding. **Lab evaluation:** Showed Hb 6.5 g%, TLC 4,500, platelets 7,000, globulins of 3.6 g/dL, INR 1.3, LDH 432 µ/L, vitamin B12 263 ng/mL, se iron 21 µg/dL, se ferritin 32 µg/L, folate 6.53 µg/L, rest of the labs were normal. USG abdomen showed no hepatomegaly or serositis. Malaria and dengue screening were negative. Peripheral smear was microcytic. Reticulocyte count was 0.7. Viral screening was negative. **In hospital course:** Patient had bleeding per rectum on day 2. She had received RBC and platelet transfusions the previous a day. Bone marrow biopsy done under platelet concentrate cover showed increased megakaryocytes but otherwise normal. ANA profile was negative. Suspecting ITP she was started on pulsing dose of steroids. In the following days, platelet counts started improving. She was switched to oral steroids after 3 days of pulsing. On a repeat physical examination, she was found to have cervical lymphadenopathy. Initially a FNAC was attempted under SDP cover but there was no yield, so a biopsy was attempted later which showed granulomatous infiltration with central caseating necrosis. HRCT chest done showed tree-in-bud appearance in right upper and lower lobes with fibrotic strands and bronchiectatic changes in right upper lobe. Subsequent BAL done showed AFB 2+. Patient was discharged on ATT without rifampicin (HZE + levofloxacin) and oral steroids. **Review of literature:** Showed ITP to be a very rare (<1%) presenting feature of tuberculosis.

76. A Case Report on Neuroleptic Malignant Syndrome Likely Lithium Induced.

Nisha Bhojnagarwala

DOI: 10.5005/jp-journals-10071-23353.76

A 30-year-old male patient diagnosed case of bipolar disorder, admitted in outside hospital on 19/5/2019 with high grade fever, drowsiness and decreased urine output for 2 days. Patient was on tab. clozapine 50, lithium 400 since 10/5/2019. Patient shifted to our institution and found unconscious, tachypneic, hypoxic. Patient intubated and ventilated. Patient resuscitated with fluids, started on vasopressor support. In hospital patient found to have high grade fever with neck rigidity, generalized hypertonicity and quadriparesis. Differential diagnosis of sepsis, meningitis, heat stroke, tropical fever syndrome and neuroleptic malignant syndrome was made. Investigations revealed TLC (17,800/mm^3), MPDA, NS1, scrub typhus and leptospira IgM negative. Sodium (157 mEq/L), creatinine (1.77 mg/dL), CPK (8,479 IU/L), LFT (SGOT 235 IU/L, SGPT 227 IU/L). MRI was noncontributory. Lumbar puncture not done for patient relative refusal. Culture reports and procalcitonin were negative and thus sepsis excluded. Diagnostic possibility narrowed to heat stroke, NMS and remote possibility of meningitis. Patient managed with fluids and antibiotics despite which patient continued to have high grade fever. Inj. dantrolene was advised in view of suspected NMS but due to nonavailability patient started on tab. Bromocriptine 2.5 mg QDS. Pt was anuric with increasing metabolic acidosis for which hemodialysis started. Patient continued to be drowsy. In view of prolonged requirement of mechanical ventilation tracheostomy done. NCV study was done which was normal. Patient was given regular physiotherapy. Patients vasopressor support titrated and gradually tapered off. Patient's sensorium gradually improved. Muscle power in his upper limbs improved gradually followed by lower limbs. Regular weaning trials were given. Patient was eventually put off ventilator support and was maintaining on tracheolife in room air. Bromocriptine continued and on resolution of symptoms dose gradually tapered off, eventually stopped after a month. Pt was ultimately decannulated. Patient was diagnosed as a case of NMS likely lithium induced.

77. Regional Citrate Anticoagulation during Continuous Renal Replacement Therapy: Single Center Experience.

Nitin Goel

DOI: 10.5005/jp-journals-10071-23353.77

Objectives: Continuous renal replacement therapy (CRRT) is increasingly being used as a treatment modality in critically ill patients. Regional citrate anticoagulation (RCA) is a novel therapy has been routinely used in the developed world, to prolong filter life and avoid bleeding complications. Regional citrate anticoagulation (regiocit, 5 L containing citrate 18 mmol/L) was launched in India in January 2018. At that time, there were no standard protocols available in India for RCA use. We formulated an institutional protocol for the use of this citrate solution. This study was aimed at assessing filter life and complications associated with it, thus validating this protocol. **Materials and methods:** This study was a single center, prospective, nonrandomized, single arm, observational study. All adult patients, with acute kidney injury requiring CRRT were included. Pregnant females, patients with an international normalized ratio (INR) >5 and serum potassium level >5 mEq/dL were excluded. Baseline demography, diagnosis, indication and laboratory parameters were collected. Effluent dose, filtration fraction, citrate and calcium dose, ionized calcium from the patient and the filter and blood gas parameters were measured and tabulated serially. Blood ionized calcium levels of 0.9–1.1 mmol/L was targeted throughout the therapy and total to ionized calcium ratio of less than 2.4 was maintained. Metabolic parameters and electrolytes were followed till 24 hours after completion on CRRT or death which ever was earlier. Average filter life, incidence of citrate accumulation and toxicity were calculated. **Results:** A total of 40 patients were included in the study. The most common diagnosis was septic shock and the most common indication for initiation of CRRT was metabolic acidosis. The average filter life was 55 hours 54 minutes. Citrate accumulation took place in 53% (n = 21) patients and none of the patients had evidence of citrate toxicity. **Conclusion:** This study captures our tryst with citrate anticoagulation in CRRT.

78. Acute Gastrointestinal Injury in Critically Ill Patients in a South Indian Intensive Care Unit: A Prospective, Observational Study.

Dipali A Taggarsi

DOI: 10.5005/jp-journals-10071-23353.78

Objective: Determine the prognostic implication of gastrointestinal injury in critically ill patients. Determine the factors predisposing to development of acute gastrointestinal injury. **Materials and methods:** A prospective, observational, single center study was conducted on critically ill patients (APACHE > 8) on enteral tube feeds, admitted in a mixed ICU of a tertiary care hospital. Patients with terminal diseases which limited aggressive therapy, pregnant or mentally challenged patients were excluded. Anthropometric data, admission diagnosis, APACHE II score, and comorbidities were recorded. Data of daily heart rate, mean arterial pressure, dose of vasopressors, intra-abdominal pressure, fluid balance, feeding intolerance, mechanical ventilation, laboratory tests were noted for first 7 days of ICU stay or till ICU discharge. Outcome at ICU discharge and at 28 days were recorded. Acute gastrointestinal injury (AGI) grade (I–IV) was the outcome of interest. Factors identified as significant were entered into a regression model with AGI grade and outcome at 28 days as ordinal and categorical dependent variables, respectively. **Results:** Data was collected from 33 patients over 190 patient days. A positive fluid balance and higher AGI scores were significantly associated with increased mortality at 28 days with p values of <0.0009 and 0.001, respectively. APACHE II, fluid balance, creatinine and lactate were entered into an ordinal logistic regression model, and fluid balance was found to have a significant correlation with acute GI injury with p value of 0.023. However, when fitted into a predictive model, they were found to be noncontributory. **Conclusion:** Higher AGI scores were associated with mortality in critically ill patients. Acute GI injury was associated with higher fluid balance. However, none of these were found to be predictors of mortality.

79. An Unusual Case of Anabolic Steroid Abuse Leading to Hepatic Adenoma and Massive Intra-abdominal Hemorrhage.

Puja Rani

DOI: 10.5005/jp-journals-10071-23353.79

Introduction: Anabolic steroid abuse is common in athletes, causing many medical complications. Here, we report the case of a young male bodybuilder with massive intra-abdominal bleed due to ruptured hepatic adenoma induced by anabolic steroid abuse. **Case description:** Twenty three-year-old male, no known

comorbidities, bodybuilder by profession, got admitted to the intensive care unit with intractable abdominal pain, abdominal distension, constipation, nausea and vomiting for 2 days. He self-medicated with anabolic steroids and hormonal supplements (both oral and intramuscular) daily for 2 years. Physical examination revealed diffuse abdominal tenderness with tender hepatomegaly. Laboratories showed severe transaminitis and raised international normalized ratio (INR). He had a drastic drop in hemoglobin from 8.4 g/dL to 5.5 g/dL within 24 hours. Abdominal contrast enhanced computed tomography (CECT) showed focal heterogeneous nodular lesions in multiple segments of liver suggestive of adenoma with partial rupture leading to large subcapsular hematoma and moderate hemoperitoneum. Patient was resuscitated with intravenous crystalloids, multiple packed cell and fresh frozen plasma transfusions. In view of the dropping hemoglobin and gross hemoperitoneum, angiographic trans-arterial embolization of the vascular supply of intrahepatic hypervascular mass was done. Gradually, hemoglobin and liver enzyme levels stabilized. Hemodynamic parameters were stabilized and bowel movement started. Repeat computed tomography (CT) scan of the abdomen revealed resolving subcapsular hematoma. After 11 days of angio-embolization, patient was discharged home in stable condition. **Discussion:** This case highlights the potentially life-threatening complications of anabolic steroid abuse and calls for a high index of suspicion for hepatic complications if a history of steroid use is elicited. **Conclusion:** There is a need for awareness in at risk population (athletes, bodybuilders) about the hepatic dysfunction and consequent life-threatening sequelae brought about by anabolic steroid abuse.

80. Incidence and Clinical Profile of Seizures of Patients during Hospitalization to a Medical ICU an Observational Study.

Safina Praveeen

DOI: 10.5005/jp-journals-10071-23353.80

Objective: The objective of the study is to study the incidence of seizures among patients in a medical ICU and their clinical profile. **Materials and methods:** After obtaining approval from the Ethical Committee of our institute and informed consent from the family, this prospective observational study was carried out on 50 patients from June 2019 to November 2019 in a medical ICU. Patients who had a seizure during ICU stay were included in the study. **Inclusion criteria:** Age >18 years. Medical ICU patients who had a seizure during their stay in medical ICU. **Exclusion criteria:** Patients with previous history of seizure. Patients with history or presenting with cerebrovascular accident. Patients with history of head injury or other CNS diseases. **Materials and methods:** After selection of the patients, detailed demographic data, comorbidities, presenting symptoms and diagnosis were collected. Evaluated for biochemical parameters like serum electrolytes, serum creatinine, LFT, ionized calcium, blood sugars were collected. Radiological imaging either CT or MRI were done in all patients. CSF analysis after lumbar puncture was done in selected patients. Duration of ICU stay, mechanical ventilator support and overall outcome and neurological status at the time of discharge from ICU were studied. **Results:** Complete statistical analysis is pending. The demographic data was evaluated which did not show any clinical relevance. The incidence and cause of seizures were evaluated. Most of the seizures were of infective etiology followed by metabolic etiology. Most of the seizures were generalized tonic clonic seizures. Radiological imaging was done in all the patients, either CT or MRI brain depending on the patient profile and CSF analysis were done in few patients. **Conclusion:** Working in a multidisciplinary intensive care unit one should be vigilant about the multiple causes of seizures and evaluate patients accordingly to limit the neurological deterioration and other complications of seizures.

81. Accuracy of Noninvasive Hemoglobin Measurement in Patients Undergoing Transurethral Resection of Prostate Surgery: A Pilot Study.

S Naveen

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Background: The ability to measure hemoglobin real-time and noninvasively offers important clinical value in the assessment of acute changes in patients undergoing transurethral resection of prostate surgery. This study evaluates the Masimo Radical 7 pulse CO-oximetry in an elderly population undergoing transurethral resection of prostate surgery (TURP). **Materials and methods:** Twenty-two patients undergoing elective TURP surgery were enrolled in this prospective outcome assessor blinded, pilot observational study and followed upto 2 hours after starting prostate resection. Noninvasive Masimo Hb (SpHb) values were compared with blood gas analyzer tHb values drawn from venous samples drawn at baseline, 30 minutes, 1 hour, 2 hours using the Bland–Altman plots. **Results:** For the comparison between SpHb and tHb, SpHb displayed a negative bias at baseline {0.82 g/dL [95% confidence interval (CI): 0.10–1.74]}, 30 minutes {0.36 g/dL [95% confidence interval (CI): 0.36–1.09]}, 1 hour {0.99 g/dL [95% confidence interval (CI): 0.49–1.49]} and 2 hour {0.73 g/dL [95% confidence interval (CI): 0.24–1.23]} after starting prostate resection. The limits of agreement at baseline, 30 minutes, 1 hour and 2 hours after starting prostate resection were: −4.9 and 3.3, −3.6 and 2.9, −3.2 and 1.2, −2.9 and 1.4, respectively. **Conclusion:** The variability in bias and limits of agreements of Masimo Radical-7 Pulse CO-oximetry SpHb may limit its clinical utility for assessing Hb concentration in patients undergoing elective TURP surgery. However, completion of the study is needed for further confirmation of the pilot results.

82. Profile and Management of Acute Kidney Injury in the Pediatric Intensive Care Unit with Special Reference to Furosemide: Retrospective Observational, Analytical Study.

Rohit Bhowmick

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Objective: To compare the proportion of critically ill children with AKI progressed to a higher stage and/or recovered from AKI in those who received the furosemide infusion as compared to those who did not receive furosemide infusion. **Materials and methods:** Retrospective medical record-based observational analytical study in which data collected for 406 patients with AKI admitted in the PICU. In this study, participants were divided into two groups depending on furosemide infusion therapy. Acute kidney injury classification and recovery of AKI and/or progression of AKI were noted. PICU outcome like survived or died was also noted. Renal recovery was taken as the "return of serum creatinine to within 10% of baseline levels and a spontaneous urine output ≥1.0 mL/kg/hour for a minimum of 24 hours independent of RRT." The primary outcome compared was the proportion of children of both groups progressed to a higher stage and/or recovered from AKI. **Results:** Among 406 patients, 203 patients received furosemide

infusion, and 203 patients did not receive furosemide infusion. The baseline characteristics like age, gender distribution, height, weight, and body surface area were similar between both groups. Hence both groups are comparable. The severity of AKI at admission was not statistically significant between the two groups. Patients with the respiratory, central nervous system, cardiovascular system statistically significant among the two groups. Ischemic ATN was the primary cause of AKI in our study. Ischemic ATN was higher among children in the furosemide group compared to no furosemide infusion group. In that, sepsis was the predominant cause comprising statistically significant. In the furosemide group, 51.2% recovered from AKI whereas in the other group 56.7% (not statistically significant). The number of patients who underwent RRT was not statistically different between the two groups. **Conclusion:** The furosemide infusion neither improved renal recovery nor reduced the progression of AKI from a lower stage to a higher stage in critically ill children with AKI. It had a role in improving diuresis in patients with AKI but did not affect fluid balance. It did not affect the requirement of RRT and duration of RRT.

83. A Rare Case of Hypertriglyceridemia Induced Acute Pancreatitis in Pregnancy.

Kesarimasaipeta, Ankit Agarwal, Sagarika Panda

DOI: 10.5005/jp-journals-10071-23353.83

Introduction: Pancreatitis due to hypertriglyceridemia is uncommon in pregnancy with incidence between 1 in 1,500 and 1 in 4,500 pregnancies. **Case description:** We report a case of 24-year G2P1L1 female with known hypothyroidism presented at 24 weeks gestation with chief complaints of upper abdominal pain radiating to back and vomiting since 3 days. Her amylase lipase levels were raised more than 3 times of the normal and ultrasound abdomen had features of bulky pancreas with minimal peripancreatic fluid. On further work up, she was found have very high triglycerides (2,200 mg/dL). As she was tachypneic with bilateral pleural effusion and had persistent tachycardia, she was shifted to ICU and started on noninvasive ventilation. Unfractionated heparin and insulin were started but due to fall in hemoglobin levels, unfractionated heparin was discontinued. Triglyceride level reduced to 544 mg/dL. But as necrotic collections were increased as evidenced from radiological imaging and she showed features of sepsis, she was started on carbapenem and percutaneous drain put for collection. As there was no consistent fall in triglyceride levels, omega 3 fatty acids were started. At 6 weeks of pancreatitis, as there was not much improvement in sepsis, she was planned for necrosectomy. During the same sitting, baby was delivered after dexamethasone injections. In the postoperative period, fenofibrate was introduced along with omega 3 fatty acids. She was gradually started on enteral feed and patient condition improved and was extubated on postoperative day 4 and weaned off ventilator support and shifted to ward. **Conclusion:** Although rare, hypertriglyceridemia induced acute pancreatitis must be considered in all pregnant women presenting with pancreatitis. Patients may need intensive care management and multidisciplinary team approach in preventing maternal and fetal mortality and morbidity.

84. Have Current Resuscitative Measures Resulted in Meaningful Outcomes with Regard to Postpartum Hemorrhage?

Juliya Pearl

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Background: Postpartum hemorrhage (PPH) is a life-threatening obstetric complication that often entails ICU admission. The burden of PPH related ICU admissions and associated morbidity and mortality needs to better elucidated. Also, whether trends in perinatal and intensive care management have led to positive changes in outcomes needs to be deciphered. **Objectives:** To compare the morbidity and mortality related to PPH related ICU admissions between 2013 and 2018 so as to delineate the usefulness of current transfusion and resuscitative measures. **Materials and methods:** Retrospective observational study conducted in a 13-bed tertiary care intensive care unit (ICU) of an academic institute. The main outcome of interest was ICU free days (30-ICU stay; ICU stay = 0 if patients dies). **Results:** The ICU free days following PPH from 2013 to 2018 was 26.32 ± 4.81 (mean ± SD) vs 27.26 ± 1.66 (mean ± SD) with a *p* value of 0.38, mortality rate in 2013 compared to 2018 is 5.3% and 4.3%, respectively. Mean fibrinogen levels (surrogate for DIC) lowest value between 2013 and 2018 was 159.45 ± 133.82 (mean ± SD) and 162.91 ± 115.42 (mean ± SD), *p* value 0.75. Change in product administration—packed cells, platelets, fresh frozen plasma and cryoprecipitate from 2013 to 2018 did not show any statistical difference. Hysterectomy rate in 2013 compared to 2018 was 36.8% and 43.5%, respectively, *p* value 0.750. **Conclusion:** Despite changes in diagnostic and management strategies to deal with PPH-ICU free stay is not clinically different. Controlled studies in this field are needed to conclude whether current transfusion strategies and resuscitative measures result in patient-oriented outcomes in postpartum hemorrhage.

85. Central Venous Oxygen Saturation as a Mortality Marker in Perforation Peritonitis: An Observational Study.

Omprakash Sundrani

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Objective: To know whether central venous oxygen saturation ($ScvO_2$) is an independent mortality marker at 28 days in patients with perforation peritonitis. **Materials and methods:** It was a prospective, observational study conducted in patients who got admitted to ICU with the diagnosis of perforation peritonitis. Enrolled patients were divided into 2 groups: group NS (nonsurvivor) and group S (survivor). Vital signs were recorded and SOFA score, SIRS criterion and SAPS II were calculated. Central venous catheter was inserted and initial $ScvO_2$ value (T0) was measured and was repeated at the end of 6 hours (T6) to access the response to resuscitation. Arterial blood sample was done for lactate, pH and bicarbonate levels. Univariate analysis was used to evaluate the correlations between all the variables. Multivariate logistic regression analysis using the mortality risk factors determined by univariate analysis was used to find the independent predictor of mortality. A ROC curve was plotted to determine the most appropriate cutoff value of $ScvO_2$ at T0 and T6 used independently to predict the mortality. **Results:** Out of total 76 patients included in the study the overall mortality at end of 28 days was 57.89%. $ScvO_2$ at the time of admission (T0) was 64.00 ± 2.74% and 73.22 ± 2.62% among non survivors and survivors, respectively. After six hours of resuscitation (T6) it was 63.30 ± 2.91% among non survivors and 73.97 ± 2.31% among survivors. The sensitivity and specificity of $ScvO_2$ at T0 in terms of mortality for value <70% was 88.64% and 81.25%, respectively. **Conclusion:** It was concluded that $ScvO_2$ can be used as an independent predictor of mortality in patients of perforation peritonitis. $ScvO_2$ values of less than 70% at the time of admission (T0) and six hours after the resuscitation (T6) was associated with higher 28 days mortality.

86. Evaluation of Optic Nerve Sheath Diameter (ONSD) as a Means of Detecting Raised ICP in Neuro-trauma Patients.

Amandeep Kaur

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Background: Raised intracranial pressure (ICP) may lead to permanent neurological sequelae especially in patients with traumatic brain injury (TBI). Optic nerve sheath diameter (ONSD) measurement with bedside ultrasound is fast emerging as an alternative noninvasive method to estimate raised ICP in comparison to computed tomography (CT) scan or magnetic resonance imaging (MRI) of the head, but its use is still limited. **Objectives:** This study was planned to determine whether the bedside sonographic measurement of ONSD can reliably predict elevated ICP in neurotrauma patients. **Materials and methods:** After approval from Hospital Ethical Committee, a cross-sectional, observational study was conducted in hundred patients with TBI or postneurotrauma patients with suspected elevated ICP, admitted to neurosurgical ICU. Severity of brain injury was graded according to Glasgow coma scale (GCS), CT scan findings and revised trauma score (RTS). All patients underwent ONSD sonography of the eye and CT scan subsequently. The results of ONSD examination were not revealed to the radiologist. Optic nerve sheath diameter of ≥5.0 mm was considered as raised. **Results:** Mean ONSD of the study group was 0.56 ± 0.03 mm. Optic nerve sheath diameter was raised in 46% of patients, more so in patients with low GCS (3–6) and the relationship between measured ONSD and GCS, CT scan findings, RTS was highly significant. Sensitivity of the bedside sonographic measurement ONSD to detect raised ICP was 93.18% and specificity was 91.07% when compared with CT scan. Positive predictive value of the ONSD measurement was 89.13% and negative predictive value was 94.44%. **Conclusion:** Ultrasonographic ONSD examination is a noninvasive, quick, reliable bedside assessment modality to detect raised ICP in neurotrauma patients. It is helpful in early initiation of treatment of elevated ICP thus preventing secondary brain damage. It is a helpful modality where CT is unavailable or patients are hemodynamically unstable or are nontransferrable due to some reason.

87. Assessment of Brain Midline Shift with Sonography in Neurointensive Care.

Ranaprathapsimha C

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Objective: To assess the reliability of sonography in measuring the brain midline shift by comparing it with CT scan in neurocritical patients. **Materials and methods:** Prospective single center study was carried out in neurointensive care patients admitted with signs of raised ICP who underwent head CT or MRI scan. Ultrasonography midline shift (USG-MLS) was calculated by measuring the mean of differences of distance between skull to third ventricle on both sides through temporal window with 2–4 MHz probe. The findings were compared with CT-MLS calculated by the radiologist as the difference between ideal midline and septum pellucidum. **Results:** A total of 24 patients were included. The mean CT-MLS was 5.458 ± 3.83 mm and USG-MLS was 4.30 ± 2.6 mm. The Pearson's correlation coefficient between USG-MLS and CT MLS was 0.77 ($p < 0.001$). The area under the receiver operating characteristic curve for detecting a significant MLS with USG was 0.96 (95% confidence interval = 0.803–1.000%), using 4.2 mm as a cutoff, the sensitivity was 90%, the specificity 92.86%. The bias was 1.13 mm and limits of agreement were −3.66 mm and 5.93 mm. **Conclusion:** This study suggests that USG could detect MLS with reasonable accuracy in neurocritical care patients and that could serve as a bedside tool in diagnosing early, the presence of significant intracranial mass effect in patients admitted to neurocritical care unit.

88. Renal Angina Index as a Predictor of Severe Acute Kidney Injury (AKI) and Need for Renal Replacement Therapy in Critically Ill Patients.

Vignesh Vasudevan

DOI: 10.5005/jp-journals-10071-23353.88

Objectives: To determine value of renal angina index (RAI) in predicting stage II or III AKI and renal replacement therapy (RRT) requirement in critically ill patients. **Materials and methods:** Prospective, observational study performed in a multidisciplinary critical care unit between March and October 2019. All patients with ICU stay >48 hours with no or stage I AKI (KDIGO criteria) were included. Patients with chronic kidney disease with estimated GFR <30 mL/minute, stage II or III AKI, on maintenance dialysis and post renal transplant were excluded. Patients were stratified into three hazard tiers (very high risk, high risk and moderate risk) based on the predefined risk factors for AKI at admission (NEFROINT investigators). Patients were categorized, renal angina index (RAI) positive or negative based on the admission risk stratification integrated with predefined elevation of serum creatinine or decrease in urine output at 24 hours. Outcomes including progression of AKI, RRT requirement, ICU and hospital LOS were collected. **Results:** One hundred and seventy patients were screened and 49 were included (43 had no AKI and 6 had stage I AKI), at study initiation. Renal angina index was positive at 24 hours in 13 patients (26%) (very high risk: 9 and high risk: 4). Among the patients with positive RAI, 5 (38.4%) had stage II or higher AKI on day 3 of admission and 3 (23%) required RRT. Among RAI negative patients, none developed stage II or higher AKI. Renal angina index predicted severe AKI with a sensitivity of 100%, specificity of 81%, PPV of 38.4% and NPV of 100%. Renal angina index had a sensitivity of 100%, specificity of 78%, PPV of 23%, NPV of 100%, to predict need for RRT. **Conclusion:** Renal angina index is a valuable tool to predict development of severe AKI and can assist in deciding the need and timing of RRT in critically ill patients.

89. Clinical Profile and Predictors of Mortality among Adults with Hemophagocytic Lymphohiostiocytosis in a Tertiary Care Center in South India.

Saran S Pillai

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Objective: The aim of our case series is to study the clinical profile of hemophagocytic lymphohiostiocytosis (HLH) in a tertiary care center in South India and to find the predictors of mortality. **Materials and methods:** A retrospective chart review of electronic medical records of adults admitted between months of January 2008 and January 2019 was done. Demographic, clinical, and laboratory variables were collected from a total of 15 patients who satisfied the HLH-2004 criteria for diagnosis. Association between the categorical variables and outcome were assessed using the Chi-square test. Student *t* test was used for the analysis of normally distributed continuous variables, and Mann–Whitney *U* test for continuous variables that were not normally distributed. **Results:** Prolonged fever was the chief complaint in 93% of the patients

with a median of 30 days of symptoms before criteria suggestive of HLH were satisfied. The most common examination findings noticed were hepatomegaly (87%) and splenomegaly (80%). Laboratory derangements of thrombocytopenia, hyperferritinemia, elevated liver enzymes, and elevated lactate dehydrogenase (LDH) were seen in 100% of the patients. Overall mortality rate of 53.3% (n = 8) was seen, with it being highest for HLH associated with malignancy followed by autoimmune disease, infection and idiopathic HLH. Variables that were considered to be significantly associated with mortality were development of sepsis (p = 0.005), need for ventilation (p = 0.003) or hemodynamic support (p = 0.019), neutrophil count less than <1 K/UL (p = 0.038), and biopsy showing hemophagocytosis (p = 0.029). **Conclusion:** Physicians must have a high index of suspicion for diagnosing HLH in patients presenting with fever and hepatosplenomegaly with laboratory findings of thrombocytopenia, hyperferritinemia, elevated liver enzymes and elevated LDH. Development of sepsis during the hospital course, need for respiratory or hemodynamic support, neutropenia less than 1 K/UL, and biopsy showing hemophagocytosis have an association with mortality and clinicians must exert utmost diligence in these HLH patients.

90. Overcoming Crisis: Cholinergic Crisis Complicating Myasthenic Crisis in a Young Female with Myasthenia Gravis.

Balaji Muruga Balasubramanian

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Introduction: Myasthenia gravis is a neuromuscular disorder characterized by weakness and fatigability of skeletal muscles. The underlying defect is a decrease in the number of available acetylcholine receptors at neuromuscular junctions due to an antibody-mediated autoimmune attack. **Case description:** A 19-year-old female was brought to the hospital with history of dysarthria and dysphagia since 4 months, diagnosed as myasthenia gravis at outside hospital and was on treatment, stopped 1 month back. Now presented with progressive breathlessness y since 1 month, taken to GH, intubated and brought here for further management. On arrival, patient was conscious, obeying commands, vitals stable, on ventilator support. NCS/RNS showed decremental response. Tracheostomy done. Treated with antibiotics, cholinesterase inhibitors, steroids and other supportive measures. On day 2 of admission, respiratory insufficiency worsened, cholinergic crisis was suspected, offending drug stopped and treated with iv and nebulized anticholinergics, after which patient improved symptomatically. **Discussion:** Myasthenic crisis is defined as an exacerbation of weakness sufficient to endanger life; which comprises of respiratory failure caused by diaphragmatic and intercostal muscle weakness. The possibility that deterioration could be due to excessive cholinesterase inhibitors ("cholinergic crisis"), but occurred at regular dose in this patient. Cholinergic crisis is best excluded by temporarily stopping anticholinesterase drugs. The most common cause of crisis is intercurrent infection which should be treated immediately, since the immunologic defenses of the patient is assumed to be compromised. Early and effective antibiotic therapy, respiratory assistance and pulmonary physiotherapy are components of the treatment plan. Plasmapheresis or IVIg is frequently helpful in speeding up the recovery process. **Conclusion:** Cholinergic crisis can occur even at regular doses, if recognized promptly and treated accordingly, the prognosis is likely to be favorable.

91. Neurological Complications of Dengue Fever.

Parin Patel

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Introduction: Dengue, an acute viral disease transmitted by *Aedes* mosquitoes, is highly endemic in many tropical and subtropical areas of the world. Recent observations indicate that the clinical profile of dengue is changing, and that neurological manifestations are being reported more frequently. In this retrospective study, we report various neurological complications observed during the last 3 months. **Materials and methods:** The patients presenting with neurological complications with positive serology (quantitative, IgM antibody) for dengue infection or dengue polymerase chain reaction and serotyping were consecutively recruited from the Department of Critical Care Medicine from a tertiary center of Ahmedabad, India. These patients were subjected to a detailed clinical evaluation, laboratory assessment including blood count, hematocrit, coagulation parameters, biochemical assays, serology and serotyping for dengue fever and other relevant investigations. **Results:** During last 3 months, approximately 80 patients were admitted in intensive care unit. Among them 15 (18.75%) patients had neurological complications. Thirteen patients were below 35 years of age. Thirteen patients were male and 2 patients were female. Among them 6 patients had history of sudden altered sensorium with normal MRI findings (encephalopathy). Four patients had absence of flow (circulatory failure) in brain due to cerebral edema. One patient had multiple microbleed in brain. One patient had right frontal hematoma with cerebral edema. One patient had small left occipital hemorrhage. One patient had focal hemorrhagic changes in thalamus and cerebral hemisphere with edema. One patient had hypokalemic paralysis. Most of patients did not present with classical dengue hemorragic fever. Among 15 patients, six patients did not survive. **Conclusion:** Dengue virus is not a neurotropic virus but this year we have seen widespread neurological complications with high mortality predominantly in young patients with dengue fever.

92. Inhalational Anesthetics in ICU for Refractory Status Epilepticus. Initial Hitches and Experience.

Jyoti Sharma

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Introduction: Malignant status epilepticus (SE) is life-threatening state which continues up to or beyond 24 hours despite of anesthetic medications. This includes those cases where SE recurs on the reduction or withdrawal of anesthesia medications. **Objectives:** Few cases of SE progress to SRSE. Treatment is still unknown or little explored. We experienced encouraging results with inhalational anesthetic use in ICU, which involved glitches of making arrangements for anesthetic delivery in ICU. **Materials, methods and results:** A 32-year male presented with H/O ingestion of poison (chlorpyriphos) under influence of alcohol. After initial stabilization in HDU, receiving inj. atropine and PAM, after 11 hours became agitated and developed seizure. Seizures were continuous, generalized tonic–clonic, not controlled with multiple anticonvulsants. Patient continued to have partial seizure episodes with positive EEG. He received phenytoin, sodium valproate, midazolam, levetiracetam, magnesium, thiopentone infusion for next 12 hours, without attenuation of seizures. We decided to initiate inhalational therapy, anesthesia workstation from nearby OT was moved to ICU. Isoflurane was started in 1% volume

percentage at flow rate of 2 L/minute oxygen in air through closed circuit. Within 10 minutes, cessation of seizure activity along with isoelectric EEG was observed. After 24 hours, the patient remained seizure free, isoflurane was tapered which resulted in partial seizure activity. After 24 hours, isoflurane was tapered over next 24 hours. **Discussion:** General anesthesia with volatile anesthetic agent is considered last reserved resort in management of SRSE. Isoflurane has minimal reported adverse effects as is rapidly titratable, low solubility and organ-free metabolism in contrast to other agents. Literature has reports of isoflurane been used for more than three weeks for controlling seizures. Present case highlights the importance role of anesthesiologist/neuroanesthesiologist in ICU with will to incorporate adjustments to get inhalational delivery in ICU for early identification and management of refractory SE.

93. Measured Glomerular Filtration Rate using Diethylene Triamine Penta Acetic Acid (DTPA) Plasma Clearance vs Estimated Glomerular Filtration Rate using Modified Schwartz Formula in Critically Ill Children: A Prospective Observational Analytical Study.

Rohit Bhowmick

DOI: 10.5005/jp-journals-10071-23353.93

Objective: To study the strength of agreement between the measured (m-GFR) by ^{99m}Tc-DTPA renal clearance and estimated GFR (e-GFR) by modified Schwartz formula in critically ill children in PICU. **Materials and methods:** Children aged (corrected age) 1 month to 12 years admitted in PICU, were included in the study within 24 hours of admission to PICU with stable hemodynamic parameters. One mCi (mile Curie) of freshly prepared ^{99m}Tc-DTPA dispensed in preweighed syringes was injected intravenously followed by 2 mL of normal saline flush. Two blood samples for GFR estimation and simultaneous SCr were taken at 2 hours and 4-hour following injection in a heparinized vial. The counting of samples was done within by Russell's two-sample slope-intercept method was performed. GFR was calculated as follows by using the modified Schwartz formula, e-GFR = $k \times L/Sr$. **Results:** Bland–Altman plot for GFR by ^{99m}Tc-DTPA plasma clearance and bedside Schwartz method showed a mean difference of 4.538 [95% confidence interval (CI) = −0.388 to 8.895]. The limit of agreement ranged from −61.32 to 69.87. ICC coefficient in our study showed moderate correlation in the whole study group, in subjects more than 24 months of age and in patients suffering from AKI. For computing Bland–Altman plot mean bias limits of agreement between the e-GFR and m-GFR were calculated among different study population. One hundred thirty-one (64.8%) patients were diagnosed with AKI as per p-RIFLE classification, and the e-GFR was measured in those populations by the bedside Schwartz formula. One hundred twenty-seven patients (62.87%) diagnosed AKI within 24 hours of PICU stay by using bedside Schwartz formula and 117 of them also matching AKI criteria if GFR was considered as per m-GFR value. Seventy three (55%) patients recovered from AKI during their PICU stay. **Conclusion:** Our analysis of the agreement of the bedside Schwartz formula detected good agreement with the measured GFR. We observed differences in agreement between the bedside formula and m-GFR values in infants less than two months of age and patients with normal renal function.

94. Bedside Ultrasonography of the Lung to Assist Fibre-optic Bronchoscopy in Intensive Care Unit: Clinical Application of Available Resources.

Rajeev Chauhan, Sameer Sethi

DOI: 10.5005/jp-journals-10071-23353.94

Objectives: Ultrasound lung and its ability to diagnose pathologies of the lung has now caught imagination of all intensivists but timely use of this resource with clinical application at tines is missed. We routinely advocate use of ultrasound lung to diagnose and treat acute respiratory conditions and encourage its use in patients scheduled for bronchoscopy in ICU. **Materials and methods:** Setting: ICU of tertiary care hospital in India, PGIMER, Chandigarh. We would like to present two cases where ultrasound lung helped in diagnosing lung collapse due to secretions as the primary cause of acute hypoxia and after bronchoscopy of the lung done ultrasound of the lung was able to show in real time complete recruitment of the collapsed segment and treatment of pathology. Case I: Patient intubated and on SIMV mode of ventilation for paralytic snakebite. Case II: Case of myasthenia gravis on SIMV mode in crisis. In both these cases, we were able to find static air bronchograms with very little movement of lungs on lung ultrasonography and despite routine chest physiotherapy and suctioning it was not possible to recruit the lung so decision to use bronchoscopy to aid clearing of secretions was made. After bronchoscopy, we were able to demonstrate dynamic air bronchograms and complete recruitment of lungs with the help of lung USG. The endpoint of clearing of secretions and recruitment completion was thus established using lung USG. As expected, oxygen saturation and requirement of the patients improved. **Results:** Lung USG helped in deciding end point of bronchoscopy aided clearing of chest secretions and recruitment of lungs. **Conclusion:** Routine use of lung USG is encouraged in all bronchoscopies to teach real time use of this technology.

95. A Rare Pulmonary Lymphangioleiomyomatosis (LAM) Complicated with Pneumothorax on Mechanical Ventilation in a Male with Tuberous Sclerosis Complex.

Sagarika Panda

DOI: 10.5005/jp-journals-10071-23353.95

Background and aims: Pulmonary lymphangioleiomyomatosis (LAM) is a rare disease and may be associated with tuberous sclerosis complex (TSC). Lymphangioleiomyomatosis is reported to occur exclusively in females of premenopausal age group. Here we report a rarest of rare case of lymphangioleiomyomatosis in a male patient of tuberous sclerosis. **Materials and methods:** An 18-year-old boy admitted to the emergency department with history of refractory seizure, was intubated for protection of the airway, received initial intravenous loading dose of phenytoin (1 g) and lorazepam (2 mg) and valproate 1 g for control of seizure. Subsequently he was put on mechanical ventilation with settings of fractional inspired oxygen of 30%, pressure support of 10 and PEEP of 5 mm Hg. On detailed history, he had multiple generalized tonic clonic seizure (GTCS) episodes since 6 months of age. Clinical examination revealed multiple angiofibromas over forehead, and cheeks and trunk and shagreen patches over left lower abdomen and posterior aspect of trunk. Multiple periungual fibromas were also noted on the nails of both upper limbs. MRI brains showed a heterogeneous contrast enhancing lesion in left lateral ventricle, hyperintense on FLAIR sequences suggestive of giant cell astrocytoma. On third day of hospitalization, he developed subcutaneous emphysema on neck and chest wall and right sided pneumothorax, and managed by intercostal chest tube drainage. Contrast enhanced CT chest and abdomen revealed subcentimetric thin walled cystic lesions in lungs, pneumomediastinum, right sided pneumothorax and angiomyolipoma of both kidneys. **Results:** A final diagnosis of LAM in TSC was made, pleurodesis was done and sirolimus 2 mg once a daily dose started. He was managed in the ICU with antibiotics, antiepileptics, and tracheostomised. Gradually he improved and shifted to the ward. **Conclusion:** Cystic lung disease consistent with LAM, a rare entity in men with TSC, which can be missed in patients with extrapulmonary manifestations.

96. Incidence and Severity of H1N1 Influenza ARDS [2018–2019] amongst Suspected Viral Pneumonia Cases in a Tertiary Care Centre from South India.

Talluri Sindhu

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Objectives: To compare clinical profile, course of ICU stay and outcomes in patients with H1N1 positive viral pneumonia and non-H1N1 pneumonia. **Materials and methods:** Retrospective data analysis of suspected adult viral pneumonia patients admitted to intensive care unit was carried out between April 2018 and April 2019. In patients who had initial screening bacterial cultures (sputum and ET) negative were enrolled in the study. Patient's characteristics, severity of illness, treatment modalities, and outcomes were evaluated. Using MS Excel and SPSS software the data was tabulated and analyzed. Discrete variables were expressed as counts (percentage) and continuous variables as means ± SD. Chi-square test or Fischer's exact test was used for categorical variables and Student's *t* test or Mann–Whitney *U* test for continuous variables. **Results:** Clinical data from 96 patients (H1N1 positive 40 and non-H1N1 56) was collected and analyzed. Mean APACHE II scores and SOFA scores of patients with and without H1N1 infection was comparable; (13.3 ± 6.8 and 12.72 ± 5.06, p value > 0.05, 4.48 ± 2.45 and 4.66 ± 2.66, p value > 0.05), respectively on day of admission. The mean TLC at admission was significantly lower in H1N1 group compared to non-H1N1 group (8070 ± 5672 vs 11010 ± 7541, p value < 0.05). Incidence of AKI was significantly higher in H1N1 group compared to non-H1N1 group (45% vs 21.42%, p value < 0.05). H1N1 positive cases had significant number of severe ARDS patients in comparison to non-H1N1 cases (30% vs 12.5%, p value < 0.05). There was a significant difference observed in the mean duration of NIV (3.41 ± 0.95 days vs 2.48 ± 1.20 days, p value < 0.05), mean duration of mechanical ventilation (10.25 ± 6.42 days vs 7 ± 6.02 days, p value < 0.05) and need for prone ventilation (53.57% vs 16.66%, p value < 0.05) in H1N1 positive group. Three patients in H1N1 positive group needed ECMO whereas none in non-H1N1 group. The mean duration of ICU stay (10.48 ± 7.48 days vs 6.48 ± 6.07 days, p value < 0.05), mean duration of hospital stay (16.23 ± 9.22 days vs 11.40 ± 7.88 days, p value < 0.05) and mortality (35% vs 16.07%, p value < 0.05) in H1N1 positive group was significantly higher than the non-H1N1 group. The incidence of secondary bacterial pneumonia was higher in H1N1 positive group (30% vs 12.5%, p value < 0.05). **Conclusion:** Clinical course of H1N1 viral pneumonia is substantially different from non-H1N1 pneumonia. Affected patients required extensive therapy including extracorporeal lung support. Patients with H1N1 pneumonia with ARDS during 2018–2019 were associated

with severe hypoxemia, required prolonged NIV and mechanical ventilator support and had higher mortality.

97. ECMO in Young Male with Leptospiral ARDS.

Ramesh J Hasani

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Leptospirosis is a zoonotic disease most common in the tropics and typically associated with mild to severe pulmonary complications. On rare occasions, acute respiratory distress syndrome (ARDS) can be secondary to tropical disease. Accordingly, a history should include travel to endemic regions. Acute respiratory distress syndrome, characterized by hypoxemic respiratory failure, is associated with a high mortality of and is precipitated by both direct and indirect pulmonary insults. Treatment is largely supportive, consisting of lung protective ventilation and occasionally requires extracorporeal membrane oxygenation (ECMO) and thereby necessitating intensive care unit (ICU) admission. Acute respiratory distress syndrome commonly precipitated by community acquired bacterial pneumonia, but other putative pathogens include viruses and fungi. We describe a case of an 18-year-old male with undiagnosed leptospirosis, presenting with fever and severe hypoxemic respiratory failure, returning from a holiday. There was no other organ failure. He was intubated and received lung protective ventilation followed by prone ventilation which failed. His condition improved after ECMO and antibiotic added empirically. This case illustrates the rare complication of ARDS from leptospirosis, which may need ECMO and the importance of taking a travel history.

98. Judging the Book by its Cover? Ultrasonography in Febrile Neutropenics: A Case Report.

Amol T Kothekar

DOI: 10.5005/jp-journals-10071-23353.98

We report a case of febrile neutropenia presenting with respiratory distress having disagreement in radiological and sonological findings. An 8-year-old male child, with acute myeloid leukemia (AML M5), being treated with anthracycline-based intensive chemotherapy was admitted to the inpatient department with febrile neutropenia. He was started on meropenem and colistin for multiresistant *Escherichia coli* bloodstream infection and enalapril for cardiomyopathy (LVEF 40%). The patient and presented to ICU with septic shock and type I respiratory failure. Preoxygenation using NIV was started pending preparation for emergent invasive mechanical ventilation. Tracheal intubation was facilitated with intravenous ketamine and succinylcholine. The patient suffered bradycardia followed by cardiac arrest during intubation and was revived (ROSC) after 7 minutes of CPCR. ETCO2 was used to confirm adequacy of chest compressions and position of the endotracheal tube. Post ROSC patient required high vasopressor support (upto 1 µ/kg/minute of noradrenaline) and FiO_2 1.0 to maintain vital parameters. Point of care lung US showed mild pleural effusion and lower lobe consolidation on the left side (Fig. 1) and normal lung sliding on right side. Surprisingly chest X-ray (Fig. 2) failed to pick up pathologies on left side however revealed right hilar opacity. Disagreement in these findings could be due to the fact that ultrasound has of poor penetration in aerated lung and can identify pleura based pathology in contrast to deeper penetration of the X-ray. On the other hand, ultrasound is very sensitive for detecting very small effusions and consolidations which are not picked up in X-ray. While the CT scans of the chest are considered to be a superior radiological investigation in febrile neutropenic patients, USG lung may be useful in the hemodynamically unstable patient who cannot be immediately transported for CT, keeping in mind its limitations in the identification of pleura based pathology.

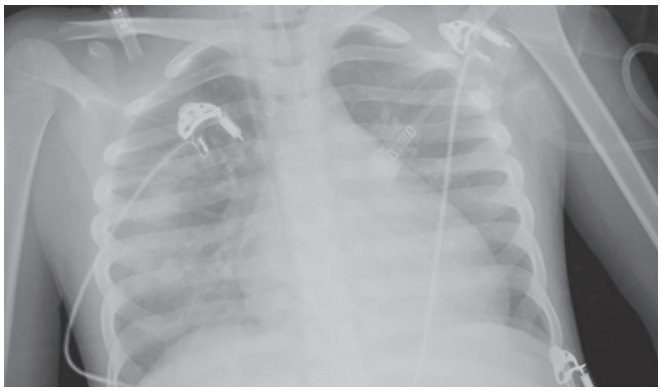

Fig. 1: Chest X-ray showing right hilar opacity

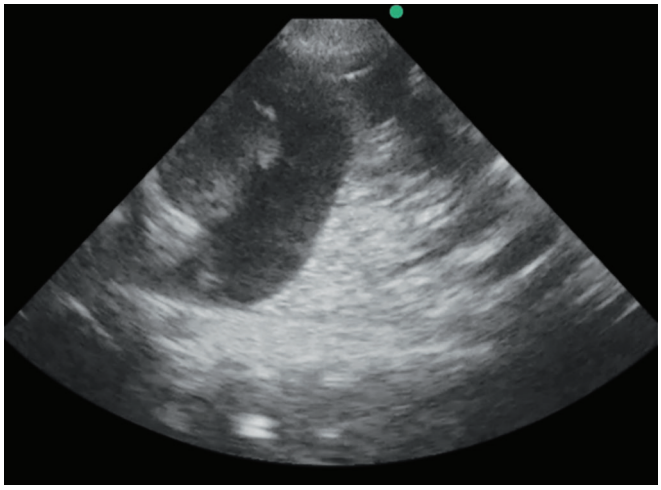

Fig. 2: USG of lungs showing mild pleural effusion and lower lobe consolidation on left side

99. Tracheostomy in Neurosurgical Patients: An Audit.

Sadaf Sharif

DOI: 10.5005/jp-journals-10071-23353.99

Introduction: In intensive care units, we often face patients with airway compromise requiring endotracheal intubation. Prolonged intubation has its short comings. Tracheostomy is advantageous in patients requiring long-term ventilator support. The benefits include patient comfort, decreased requirement of sedation facilitating early weaning. **Objectives:** We conducted this audit to display the practice in our ICU with an aim to look at ICU mortality, length of stay in ICU/hospital and weaning from ventilator. **Materials and methods:** This prospective, single-center audit was carried out in a tertiary care hospital in Mumbai. Patients who underwent tracheostomy for neurological indications from January 2019 to September 2019 in surgical ICU of the hospital were included. Patients were divided into 3 groups, depending on timing of tracheostomy—early group (0–4 days, $n = 11$), intermediate group (5–9 days, $n = 17$) and late group (≥10 days, $n = 3$). **Results:** There were a total of 31 neurosurgical patients who required tracheostomy, of which 6 were trauma patients and 25 were nontrauma (19.4%, 80.6%). Length of stay in ICU and hospital

was lower in early group as compared to intermediate and late groups (mean, 9.7, 19.9 vs 15.3, 25.3 vs 20.7, 27 days). Fewer ventilator days were observed in early and intermediate group as compared to late group (mean, 6 vs 6.8 vs 8.7 days). Decannulation was possible in 27.3% of patients in early group as compared to 5.9% in intermediate group and none in late group (Fig. 3). Incidence of death was lower in early group as compared to intermediate group (%, 18.2, 35.3). There was no mortality in late group (Fig. 4). **Conclusion:** The greatest advantage of tracheostomy is freedom from ventilator and subsequent release from ICU. It was seen that early tracheostomy resulted in less length of stay in ICU and hospital, also, fewer days spent on the ventilator. The decision for tracheostomy needs to be taken in conjunction with the family. It is a straightforward procedure and easily understood by family. Also, it provides the much-needed time for families to comprehend their patient condition.

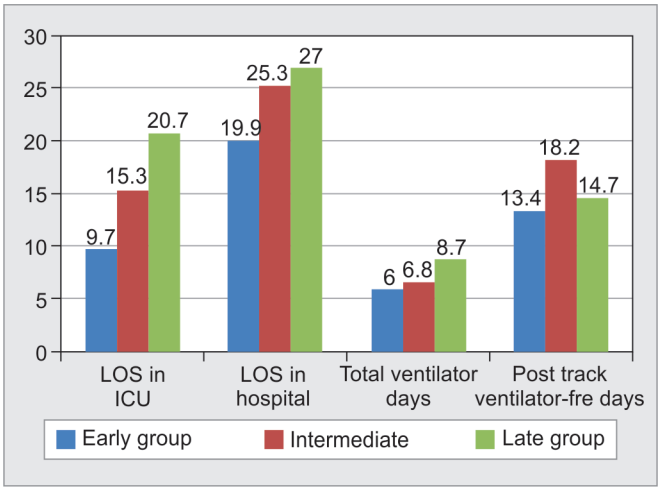

Fig. 3: Comparative assessment of primary endpoints

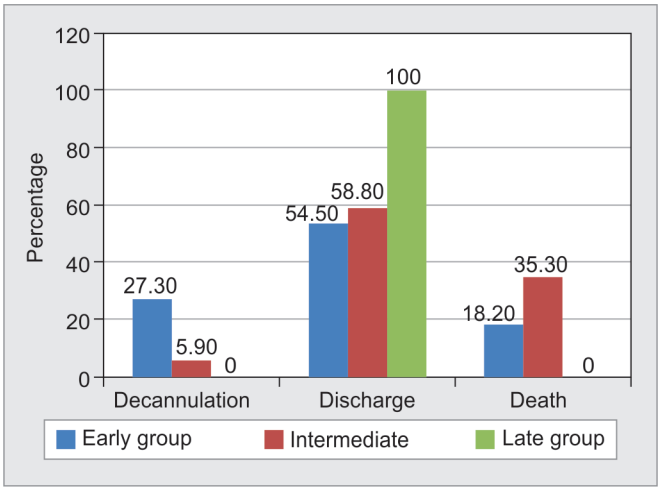

Fig. 4: Comparative assessment of mortality

100. Utility of Bedside Ultrasound for Comparison of Lung Recruitment by Peep Titration vs Proning Technique in Patients with Moderate to Severe ARDS.

Shweta Chandankhede

DOI: 10.5005/jp-journals-10071-23353.100

Objective: (1) To compare lung recruitment with peep titration vs prone ventilation by using bedside lung ultrasound and ultrasound reaeration score in patients with moderate to severe ARDS. (2) To detect the opening pressure in ARDS lung using ultrasound. **Materials and methods:** It is an observational single centered randomized trial wherein 60 patients with moderate to severe ARDS according to Berlins definition were randomized into two groups I and II consisting of 30 patients in each group. Lung ultrasound was done for both groups with a 3–5 MHz convex probe in 3 zones in each hemithorax in supine position before recruitment manuever as well as after recruitment. Patients with very unstable hemodynamics, preload dependent and raised ICP were excluded from the study. In group I patients, lung recruitment was done with peep titration. The pressure level at which the consolidation-pattern disappeared and progressive lung reaeration was observed, was considered as optimal peep. Group II patients were prone and ultrasound was done in 3 zones in both hemithorax after 2 hours. Lung collapse manifested as slight to moderated loss of lung aeration (from isolated to coalescent B-lines) up to complete atelectasis (subpleural consolidations with static air-bronchograms) was quantified using the aeration score described by Bouhemad in both groups. **Results:** Correlations between USG reaeration scores before and after recruitment in both groups will be tested using spearman correlation rank analysis. *t* test will be used to compare the aeration scores in both group after recruitment. **Conclusion:** Will be published after statistical analysis.

101. Our Experience in HFNC in Adult ICU.

Deepali Gupta

DOI: 10.5005/jp-journals-10071-23353.101

Objectives: Analysis of clinical predictors of HFNC success for adult patients. **Materials and methods:** Single center, retrospective study done from 1st June 2018 to 31st May 2019. Review of medical records was conducted. Patients with moderate hypoxia and tachypnoea who did not improve with conventional oxygen support were included in study. We delivered blended gases using HFNC device by Fischer and Paykel (AIRVO 2). The flow rate and FiO_2 was titrated to keep SpO_2 more than 92%. Arterial blood gas analysis was done at initiation, 12 hours and 24 hours after starting therapy. **Results:** One hundred and thirty patients were included in the study. Thirty percent (39) of the subjects died in hospital. Underlying chronic lung diseases, heart condition and malignancy was present in 25% of the subjects. No significant difference was seen between success and failure group in patients with underlying disease ($p = 0.469$). In regards to baseline characteristics APACHE 2 score ($p = 0.003$) and SOFA ($p = 0.002$) score were significantly lower in the success group than in the failure group. An early improvement in respiratory rate, heart rate and PaO_2 was more frequently observed in success group. The PaO_2 improvement at 12 hours (64.2%) and 24 hours (70%) was independently associated with high success rate. The respiratory rate improvement at 12 hours and 24 hours were observed in 65.4% and 79.7% of the patients in success group and 62% and 54% of the patients in failure group, respectively. No episodes of intolerance with HFNC were recorded. **Conclusion:** Results provide preliminary evidence that HFNC therapy can be used in acute hypoxemic respiratory failure. Low APACHE II and SOFA score along with early improvement in oxygenation and physiologic parameters are useful predictors of success. But timely intubation should be considered in patients showing no improvement.

102. Safe Proning Checklist: A Novel Approach to Improving the Safety of Patients in ARDS.

Anubhav Sharma

DOI: 10.5005/jp-journals-10071-23353.102

Objectives: To develop a comprehensive checklist to standardize practice, improve overall staff comfort and patient safety when placing a patient in the prone position. **Materials and methods:** A draft checklist was developed by: reviewing current literature to identify complications of prone positioning and nursing strategies to mitigate these complications. Reviewing our department's previous prone positioning guideline, guidelines from other health care facilities. Engaging the interdisciplinary team for input and feedback. Revising the checklist based on feedback from front-line staff and doctors. **Results:** The checklist and accompanying guideline provides a step-by-step, systematic process appropriate for novice to expert staff. By including the interdisciplinary team from the onset of its development the checklist meets the needs and concerns of each discipline involved in the care of the prone patient. The checklist addresses patient safety by focusing on interventions to prevent possible complications prior to initiating the prone position, e.g., pressure ulcers, line dislodgement, corneal abrasions, etc. It includes routine monitoring, assessment and a plan of care for patients in the prone position. **Conclusion:** The use of checklist when performing the prone position maneuver increased the safety and reliability of the procedure. The team's understanding of the tool's importance to patient safety and training in its use are necessary for its success.

103. Evaluation of the Effect of Recruitment Maneuver in Reducing Postoperative Pulmonary Complications in Patients undergoing Robotic Hysterectomy: A Randomized Control Study.

P Prabakaran

DOI: 10.5005/jp-journals-10071-23353.103

Introduction: General anesthesia is associated with altered lung mechanics lead to reduced lung volumes and atelectatic zone formation. Approximately 5% of patients undergoing surgery develop postoperative pulmonary complications. Positioning during robotic abdominal surgeries adds to pulmonary complications due to extreme positioning and pneumoperitoneum. We evaluated the safety and efficacy of recruitment maneuver (RM) in reduction of postoperative pulmonary complications in patients undergoing robotic assisted hysterectomy. **Objectives:** To compare the changes in arterial blood gas (ABG) parameters between selected groups at predefined intervals during perioperative period. To compare the changes in parameters of pulmonary function test among the selected groups using portable spirometry. **Materials and methods:** ASA-I/II, 66 patients with normal respiratory function were randomly allocated into group R (recruitment) and group C (control) (n = 33 per group). Initially in all patients, a baseline bedside PFT was done preoperatively. During surgery all patients were ventilated with tidal volume (TV) of 6–8 mL/kg, respiratory rate (RR) 12/minute, positive end expiratory pressure (PEEP) 5 cm H_2O, inspiratory–expiratory ratio (I:E ratio) of 1:2, FiO_2 of 0.4. Patients in-group R received recruitment maneuver (RM) every 30 minutes after tracheal intubation. While the group C patients did not receive any RM. Peak pressure plateau pressure and lung compliance were measured. Hemodynamic parameters and arterial blood were analysis were measured at regular intervals. PFT were repeated on first postoperative day. **Results:** Total, 66 patients were analyzed. There was significant fall in PFTs were observed in both group R and group C following surgery (p = 0.0001), however, it was not statistically. Significant in-between groups. In ABG analysis there was increase in PaO_2 after RM in group R ($p \leq 0.0001$) compared to group C after 30 minutes of intervention. **Conclusion:** Recruitment maneuver improves oxygenation intraoperatively in patients undergoing robotic assisted abdominal surgeries and reduces incidence of hypoxia.

104. Challenges in Endotracheal Intubation Outside or: An Observational Study.

Anjishnujit Bandyopadhyay

DOI: 10.5005/jp-journals-10071-23353.104

Objective: To study complications and success rates of intubation of anesthesia residents in prior failed intubation by ward residents of PGIMER. **Materials and methods:** All patients in whom unsuccessful and *de novo* intubation calls were made, were enrolled in this study. Intubations were categorized into two types-previously failed intubations and *de novo* intubations. Relevant data regarding intubation calls attended by the anesthesiologist were collected. Intubation calls were attended by 2nd year anesthesia residents or seniors to them. **Results:** The overall complications rate for attempted cases by ward residents was 93.6%. Desaturation was the most common complication (69.1%) followed by airway trauma (35.1%), oesophageal intubation (27.7%) and aspiration of gastric contents (17.0%). The overall complications rate in *de novo* elective intubations and previously failed intubations by anesthesia residents was 21.3% and 41.5%, respectively. Most common complication in patients intubated by anesthesia residents was desaturation with incidence of 17.3% among the elective cases ad 32% in previously failed. Second most common was aspiration of orogastric contents with rates of 4.3% in *de novo* cases and in previously failed cases was 5.5%. Airway trauma was the 3rd commonest complication, 4.3% in previously failed intubations and in 1.5% of *de novo* cases. **Conclusion:** Overall complication rates were significantly higher in intubations done by ward residents, underscoring the need for better teaching and training regarding emergency and urgent airway management.

105. Is it Safe to Administer Systemic Corticosteroid as Rescue Therapy in Severe Viral Pneumonia: A Single Centre Observation.

Nayani Sridevi

DOI: 10.5005/jp-journals-10071-23353.105

Objective: To determine safety of systemic corticosteroid as a rescue protocol therapy in children with viral pneumonia. **Materials and methods:** A retrospective observational study was conducted in a tertiary care hospital at Mehta Children's Hospital Chennai, for 1 year from April 2018 to April 2019. We have taken 100 consecutive patients with confirmed diagnosis of viral pneumonia, confirmed by multiplex PCR. Subjects were divided into two groups based on systemic corticosteroid administration as rescue therapy. We compared both groups to ascertain the safety of systemic steroid therapy. **Results:** RT-PCR revealed, 46% positive for RSV, rhinovirus—22%, influenza—16% and other viruses—HMPV, parainfluenza, adenovirus was 16%. The median age of subjects was 1 year. Subjects were classified into steroid (A—57%) and non steroid (B—43%) group and severity of illness was based on clinical respiratory score into mild (A—27.5% vs B—72.4%), moderate (A—63.7% vs B—36.2%),

severe (A—92.3% vs B—7.6%). Number of severe cases were significantly higher in group I ($p < 0.001$). Oxygen requirement was significantly higher in group I ($p < 0.001$) as evidence by data—simple flow (A—27.5% vs B—72.4%), HFNC (A—65% vs NS—35%), ventilation (A—90.9% vs B—9.09%). Terbutaline requirement was significantly higher in group I ($p < 0.001$). We excluded ventilated children to compare outcome measures. Mean duration of PICU (A—6 days vs B—5 days) and hospital stay (A—8 days vs B—6 days). All children have been discharged in both the groups. **Conclusion:** We conclude that while giving systemic corticosteroid as rescue therapy in severe viral pneumonia, the therapy has not found to increase secondary infection, duration of PICU stay and readmission rate.

106. Invasive Aspergillosis in Critically Ill Immunocompetent Patient with Severe Influenza: A Case Report.

Deepak Jeswani

DOI: 10.5005/jp-journals-10071-23353.106

Objectives: Sixty one-year-old male patient referred to our tertiary care center on noninvasive ventilation (NIV) support with signs of respiratory distress as severe breathlessness and hypoxia, with positive influenza A H1N1 2009 and X-ray suggestive of bilateral pneumonia. On admission vitals were: pulse 92/minute, SBP: 110 mm Hg, DBP 70 mm Hg, RA SpO_2 76% (room air) RR: 30/minute, temperature: 98.6°F. **Materials and methods:** The patient was treated with oseltamavir and supportive treatment. Since, the patient was symptomatic for breathlessness even after three days of aggressive treatment, high resolution chest CT was done that revealed—mild diffuse bilateral long parenchyma ground glass opacities and areas of consolidation with air bronchogram with reactive mediastinal nodes. The patient continued to remain in respiratory distress even on NIV with deteriorating oxygenation hence electively intubated and ventilated. Endotracheal secretion culture revealed *Klebsiella pneumonia* and polymyxin B initiated. Despite elective tracheotomy the persistent high-grade fever necessitated initiation of nebulized colistin. Patient was ventilated as per ARDS, net protocol low tidal volume optimum PEEP. After five days bronchoalveolar lavage (BAL) was done which revealed positive galactomannan suggestive of invasive pulmonary aspergillosis and therefore inj. voriconazole and was initiated followed but within five days the patient developed significant hepatic dysfunction mandating change over to liposomal amphotericin B. Biochemical investigations revealed raised procalcitonin, leucocytosis and raised C reactive protein. After five days the titers of galactomannan decreased and further after five days the galactomannan and procalcitonin were insignificant. The patient was eventually discharged in a stable condition. **Results:** We report an unusual rare case of invasive pulmonary aspergillosis in immunocompetent but critically ill patient, with severe sepsis, multiorgan dysfunction syndrome. The nonresponsiveness to aggressive management with broad-spectrum antimicrobials, mechanical ventilation, and vasopressor support sparked the need for galactomannan detection which guided the management. **Conclusion:** Our experience suggests that in critically ill patients, the diagnosis of invasive pulmonary aspergillosis must not be disregarded, especially with underlying influenza infection. This is even more important as; it has been reported that the mortality rates of aspergillosis in non-neutropenic ICU patients are higher than in immunocompromised patients.

107. Optimal Level of Bispectral Index for Conscious Sedation in Awake Fiberoptic Nasotracheal Intubation.

Hariharan M

DOI: 10.5005/jp-journals-10071-23353.107

Objectives: Bispectral index (BIS) monitoring is an objective scale for measuring sedation and is currently used in many awake procedures requiring conscious sedation. In this study we aimed to determine the optimal bispectral index level for conscious sedation in awake fiberoptic nasotracheal intubation. **Study design, materials and methods:** In prospective, outcome-assessor blinded, observational design, 94 patients were posted for elective surgery requiring awake fiberoptic nasotracheal intubation. We achieved airway anesthesia with lidocaine, and conscious sedation with dexmedetomidine and propofol titrated to BIS ≤ 90 and ramsay sedation scale (RSS) ≥ 2. Primary outcome was to find the optimal BIS value at which awake fiberoptic nasotracheal intubation could be performed feasibly. A receiver operating characteristic curve and Youden index was used to determine the levels of BIS. **Results:** The optimal BIS was obtained as 86 (sensitivity 88%, specificity of 60%, *p* value < 0.001). Most intubations were performed feasibly within a BIS range of 80–86. There was also a significant correlation between BIS and RSS (intraclass correlation coefficient: 0.82). Six patients had transient untoward events (three bradycardia, two hypotension, one hypertension) managed conservatively. **Conclusion:** The BIS value of 86 signifies optimal sedation levels for performing awake fiberoptic nasotracheal intubation feasibly. Keeping a BIS range of 80–86 provides adequate conscious sedation for the above procedure.

108. Assessment of Lung Recruitment in Prone Ventilation in Patients with Moderate to Severe ARDS by using Bedside Ultrasound.

Dodly Goutham

DOI: 10.5005/jp-journals-10071-23353.108

Objective: Our goal was to demonstrate lung recruitment after prone ventilation by using bed side lung ultrasound and ultrasound re aeration score in moderate to severe ARDS patients. **Materials and methods:** Observational comparative single center unblinded study. **Inclusion criteria:** Age >18 years, patients admitted to ICU diagnosed as moderate to severe ARDS as per berlin definition planned for proning. **Exclusion criteria:** Age <18 years, c/i to proning (raised ICP, unstable hemodynamically, surgery on trachea or sternum in 15 days, etc.), conditions where USG is precluded (s.c. emphysema, large thoracic dressing, morbid obese). **Methodology:** Thirty consecutive patients with moderate to severe ARDS after consent, ethical clearance, were evaluated using USG 2–4 m/z probe initially in supine position in all 3 zones and later after 2 hours of proning, the worst USG abnormality detected was considered as characterizing the region examined, USG re aeration scores calculated and change in score documented. Four ultrasound aeration patterns were defined. Normal aeration (N): presence of lung sliding with lines or fewer than two isolated b lines. Moderate loss of lung aeration: multiple well-defined b lines (b1 lines). Severe loss of lung aeration: multiple coalescent b lines (b2 lines). Lung consolidation (C): the presence of a tissue pattern characterized by dynamic air bronchograms (Table 1).

Table 1: Quantification of reaeration

One point	*Three points*	*Five points*
B1 → N	B2 → N	C → N
B2 → B1	C → B1	
C → B2		

Ultrasound lung reaeration score was calculated as the sum of each score characterizing each lung region examined according to the scale shown in the table.

109. Clinical Profile and Outcome of Children undergoing Tracheostomy in a Tertiary Care Pediatric Intensive Care Unit.

Ravi Kumar Mooli

DOI: 10.5005/jp-journals-10071-23353.109

Objectives: To describe the clinical profile, indications, surgical timing, and long-term home ventilation requirement of children undergoing tracheostomy in a pediatric intensive care unit in a resource-limited setting. **Materials and methods:** Retrospective case-series from hospital health records from January 2015 to November 2019. **Results:** Fifty-four children underwent tracheostomy for various reasons in our PICU during the study period. The median age was 23 months (range 1–220). Thirty-five percent (35%, *n* = 19) were less than one year of age. Seventy-two percent (72%, *n* = 39) were male. The most frequent indication for tracheostomy was airway obstruction (congenital/acquired) (*n* = 21) followed by need for prolonged ventilation due to underlying neurological problem (*n* = 18). The average duration of ventilation before tracheostomy was 15 days. Thirty percent (*n* = 16) children were sent on long-term home ventilator support (LTV). In the LTV group, 3 patients were successfully decannulated, 3 are still on tracheostomy ventilation, 5 died, and 5 were lost to follow-up. Seventy percent (*n* = 38) of children needing tracheostomy did not need home ventilation. In this group, decannulation was successful in 76% children (*n* = 29), while 18.5% (*n* = 7) still required tracheostomy, 5% children (*n* = 2) children are lost for follow-up. The mean duration to decannulation was 9 months. The only complications of tracheostomy found were granulation tissue formation at the site, suprastomal collapse. **Conclusion:** Children with tracheostomies have varied etiologies. Those requiring tracheostomy for upper airway obstruction and not needing LTV support have better outcomes and higher rate of successful decannulation. Tracheostomy care can be safely provided at home by families of varied socioeconomic backgrounds in resource limited settings with appropriate training and follow-up.

110. To Assess the Efficacy of Measurement of Diaphragm Indices as New Additive Predictive Tools to the Conventional RSBI Alone for Weaning in ICU.

Savitha Appana

DOI: 10.5005/jp-journals-10071-23353.110

Objectives: To compare and assess. Efficacy of RSBI. Efficacy of diaphragm thickening fraction (DTF). Efficacy of diaphragm excursion (DE)… as strategies to assist weaning. **Materials and methods:** Study design: a prospective RCT, comprising intubated patients in medical ICU is being done over a period of 12 months (January 2019 to December 2019) with approval from the Institutional Ethical Committee. Inclusion criteria: age: 18–65 years. Gender: males and females. On mechanical ventilation for >48 hours. Have met the readiness to wean. Exclusion criteria: patients with neuromuscular disorders. Cervical spine injuries with phrenic nerve palsies. Intraabdominal hypertension. Pregnancy. Diaphragm paralysis have been excluded. Methods: patients on PPV with invasive airway (ETT or tracheostomy) after fulfilling "readiness to wean" are next subjected to "SBT" with T-piece on 8–10 L/minute O_2 in semirecumbent position (in order to omit the effects of pressure support on the diaphragm; PSV mode is not chosen) and are assessed 20 minutes after start of SBT by 2 methods: group I (successfully weaned). Group II (failed weaning). Cases were defined as: a successful weaning attempt was registered when patients were extubated and breathed spontaneously for more than 48 hours. The reinstitution of mechanical ventilation during or at the end of the SBT, reintubation within 48 hours or the use of NIV (noninvasive ventilation) within 48 hours of extubation were registered as failed weaning attempt. **Results:** The RSBI is an integrative function of respiratory load and inspiratory muscle capacity. It reflects the function of all inspiratory muscles including the diaphragm and the nondiaphragmic muscles. If the diaphragm is failing, the nondiaphragm inspiratory muscles will compensate to preserve the tidal volume, and the presence of diaphragm weakness may be masked. However, the nondiaphragmatic muscles are more prone to fatigue and weaker than the diaphragm, and will not be able to sustain adequate ventilation for a long time. Hence, it is proposed that RSBI can give false-positive result as extubation criteria and extubation failure may occur despite an initially adequate tidal volume and good clinical extubatable condition. Our result can be explained by the fact that we have taken all the measurements after 20 minutes of giving SBT. RSBI expresses the end product of the balance between strength and load of all muscles, and by 20 minutes, when all accessory muscles also fail to contribute the required tidal volume, RSBI correctly determines which patient can be extubated and which cannot. Ultrasonography is a ubiquitous, cost-effective and portable technology. Motion mode ultrasonography has shown promising results in screening outpatients at high probability of difficulty weaning. It allows electronic capture of structures lying cephalad and caudad with respect to the diaphragm. Assessment of diaphragmatic excursion by calculating hepatic or splenic downward displacements during spontaneous breathing trials, diaphragm motion and diaphragm thickening fraction by ultrasound have emerged as novel techniques. **Conclusion:** Diaphragm USG along with RSBI have a better sensitivity and specificity when combined; hence USG forms a good additive tool. Assessment of DTF by diaphragm ultrasound in B-mode represents an easy to-obtain new weaning index that, if further validated by other studies, may be introduced as a bedside method in the clinical practice. Also, it can be extrapolated to poor nutrition, neuromuscular blocking agents, dyselectrolytemias and their relation in causing poor weaning.

111. Bronchoscopy Guided Percutaneous Dilatational Tracheostomy in Critically Ill Patients: A Study of Complication and Expanded Utility.

C Suprith

DOI: 10.5005/jp-journals-10071-23353.111

Background: Bronchoscopy guided percutaneous dilatational tracheostomy (BG-PDT) is one of the most frequently performed procedures in critically ill patients. Complications occur in 5–40% of tracheostomies depending on study design, patient follow-up, and the definition of the different complications. The mortality rate of PCT is less than 2%. We conducted this study to assess the complications and expanded utility of BG-PDT in the Indian setting. **Materials and methods:** A retrospective analysis of 116 BG-PDT performed in the last 3 years was done. PDT was done using the standard technique, using the cook PDT kit and video-bronchoscopy guidance, with all steps done under vision.

Postprocedure, all clots which migrated to the distal airway were suctioned. Complications were noted. Additional BAL was done in patients with infiltrates for cultures. **Results:** One hundred and sixteen BG-PDT were performed. The most common indication for BG-PDT was anticipated prolonged ventilator stay to facilitate weaning. Complications were divided into intraprocedural and early postprocedural complications. Positive BAL culture were also analyzed (Tables 2 to 4).

Table 2: Intraprocedural complication

Complications	*Number*	*Percentage*
Minor bleed	5	4.3
Major bleed	0	0
Airway loss and tube slippage	0	0
Post wall perforation	1	0.8

Table 3: Early postprocedural complications

Complication	*Number*	*Percentage*
Minor bleed	6	5.17
Local infections	2	1.7
Tube blockage	1	0.8
Tube displacement	1	0.8
Pneumothorax and surgical emphysema	1	0.8

Table 4: BAL cultures reports

Positive	52.4%
Negative	47.6%

Conclusion: Our study shows that BG-PDT is safe with minimal complications, when performed by experienced ICU personnel. The advantages include confirming all steps under vision, postprocedure suctioning of clots, and BAL done in the same setting. We propose BG-PDT as an "expanded PDT strategy," combining a safe visually guiding procedure with clot clearance, and additional BAL for cultures.

112. A Case of RV Mass with Unilateral Diaphragmatic Palsy.

Upender Reddy, Chandana Redd

DOI: 10.5005/jp-journals-10071-23353.112

Unilateral diaphragmatic palsy is caused by phrenic nerve injury during CT surgery, viral infections such as herpes zoster or poliomyelitis, cervical pathologies like spondylosis, cervical compressive tumors, neck trauma, PTE. Common causes of RV mass are tumor, thrombus and vegetation. We present a case of RV mass with unilateral diaphragmatic palsy with acute pulmonary thromboembolism. A 22-year-old male presented with fever, right upper quadrant pain, hemoptysis, dyspnoea of 2 weeks. He was hypoxemic and had anemia (Hb 9.2 g%) thrombocytopenia (1.05 lakh), leukocytosis (14,300), APTT 69.7, AKI, congestive hepatitis (SGPT > SGOT). CXR showed elevated right dome with absent diaphragmatic movement on USG, CTPA showed PTE with right lower lobe infarct. 2D-echo showed mass/thrombosis in RV at apex attached to IVS with normal RV size and function. Cardiac MRI was done which showed a well-defined enhancing intraventricular mass lesion (22 × 16 × 22 mm) in RV attached to IVS. USG with doppler of abdomen showed thrombosis of IVC, hepatic vein, renal vein, iliac vein. Evaluation for hypercoagulable state was positive for APLA antibodies (anticardiolipin and lupus anticoagulant). ANA and ANCA were negative. A final diagnosis of primary antiphospholipid antibody syndrome with RV mass IVC/hepatic vein thrombosis with pulmonary thromboembolism and right diaphragmatic palsy was made. He was managed with steroids, followed by anticoagulation with improvement in his symptoms and thrombocytopenia.

113. Expanding the Horizon of HFNC Therapy: High Flow Nasal Cannula (HFNC) Oxygen Therapy in ILD Exacerbation with Respiratory Failure.

TR Muralidhara

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Objectives: Acute respiratory failure (ARF) due to interstitial lung disease (ILD) exacerbation leads to significant morbidity and mortality. Conventional options in patients not responsive to supplemental oxygen (O_2) include NIV or mechanical ventilation. High flow nasal cannula (HFNC) is a relatively new modality. This study defines outcomes with HFNC in ILD exacerbation in a South Indian ICU. **Materials and methods:** Retrospective single center observational study over 1 year of patients with ARF secondary to ILD exacerbation admitted to ICU. Patients not responding to conventional O_2 therapy were connected to HFNC. HFNC was titrated according to SpO_2 and dyspnea. Once stable, patients were gradually weaned to O_2. Additionally, all patients received standard care with IV steroid pulses for 3 days followed by oral steroids. Antibacterials were given as needed. No complications were noted.
Results: The patient and HFNC details are tabulated in Tables 5 and 6. HFNC was well tolerated. Ten of twelve (83%) patients survived to ICU and hospital discharge. One patient needed mechanical ventilation and in 1 patient comfort care was instituted.
Conclusion: HFNC in ILD exacerbation with ARF is feasible, safe, well tolerated, and improves outcomes compared to other traditional methods. The mortality in this study was significantly low compared to historical data. Further studies are warranted to define the comprehensive role of HFNC in ILD exacerbation in the Indian setting.

Table 5: Patient details

Connective tissue disorder	2
NSIP	2
UIP	3
IPF	2
Chronic HP	3
Respiratory rate (breaths/minute) median (range)	25 (16–42)
PaO_2 (mm Hg): median (range)	79 (34–258)
$PaCO_2$ (mm Hg), median (range)	38 (25–65)
Arterial pH: median (range)	7.44 (7.35–7.51)
PaO_2/FiO_2 median (range)	140 (42–289)
NT-proBNP (pg/mL) median (range)	1,716 (40–6,700)

Table 6: HFNC parameters

HFNC duration: mean (range)	48 hours (24–72)
Flow: mean/range	50% (40–60)
FiO_2: mean/range	65% (40–90)
Average ICU stay: mean/range	4 (2–6 days)

114. Efficiency of HFNC in Pneumonia with Acute Type I Respiratory Failure.

M Ushashree

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Objectives: This study will aim to assess the efficiency of HFNC in pneumonia with acute type I respiratory failure in an ICU when compared to conventional O_2 therapy. **Design:** Observational study. **Settings:** This study will be conducted in an ICU of a tertiary care center. **Inclusion criteria:** Patients admitted in an ICU with pneumonia with acute type 1 respiratory failure with PaO_2 less than 60 mm Hg. Age group 15–70 years. **Exclusion criteria:** Patients with PaO_2 less than 40 mm Hg in room air. Patients with severe ARDS. Requirement of airway protection. Patients with acute MI, CVA, or other major organ dysfunction. Patients with altered mental status. **Sample size:** Fifty patients according to the inclusion criterion. **Materials and methods:** A patient who is admitted in ICU with baseline investigations showing pneumonia with type I respiratory failure will have the following parameters recorded that is oxygen saturation, partial pressure of O_2 in arterial blood (PaO_2), respiratory rate, usage of accessory muscles of respiration, blood pressure, heart rate at presentation. After patient has been started on HFNC these parameters will be monitored regularly and patients whose condition is deteriorating will be considered for NIV or intubation. The parameters before and after 4 hours of initiation of HFNC will be compared. The final outcome will be seen in the improvement in oxygen saturation, partial pressure of O_2 in blood, intubation rates, days in ICU and total length of hospital stay. **Results:** Results will be available after statistical analysis.

115. Early vs Late Tracheostomy in Critically Ill Patients of Neurosurgery.

Agrawal Nipun

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Objectives: Our objective was to determine the efficacy of early tracheostomy (i.e., ≤10 days of intubation) compared with a late tracheostomy (>10 days of intubation) with frequency of ventilator-associated pneumonia (VAP), mortality rate, and ICU stay inpatients who received decompressive craniectomy. **Results:** Retrospective study was conducted by reviewing record of 100 patients who were tracheostomized post decompression craniotomy. Sixty one were early tracheostomies and 39% were late tracheostomies. The mean age of patients was 64 ± 14 years. Patients who were tracheostomized early were on mechanical ventilation for significantly less time (≤12 days) than those patients who were tracheostomized late (>12 days, $p = 0.016$). The early tracheostomy group also had a lower incidence rate of VAP than patients with a late tracheostomy ($p < 0.001$). Patients who received an early tracheostomy had lower mortality rates than those who received late tracheostomies ($p = 0.008$). Finally, the length of ICU stay was ≤15 days for patients who received early tracheostomies; most patients who received a late tracheostomy had a hospital stay of >15 days ($p = 0.019$). **Conclusion:** Performing a tracheostomy within 10 days of intubation following decompressive craniectomy significantly reduced ventilator time, mortality, the incidence of VAP, and length of ICU stay.

116. Focused Airway Ultrasound: Important Tool for Assessing Difficult Airway in Emergency Situation.

RV Ganesh Chintala

DOI: 10.5005/jp-journals-10071-23353.116

Objective: Primary: to determine the correlation between the various sonographically assessed parameters of airway with Cormack lehane grade view at direct laryngoscopy in patients. Secondary: sensitivity, specificity, positive predictive value and negative predictive values of the parameters were assessed. **Study design:** Prospective double blinded study. **Materials and methods:** The study was conducted in tertiary care hospital and consisted of patients who got admitted in emergency unit and in intensive care unit requiring intubation. All the patients admitted in emergency unit and in intensive care unit, the airway was assessed using ultrasound in semi recumbent position and skin to hyoid distance, volume of tongue, volume of floor of mouth and skin to epiglottis were noted. The patients are classified as difficult or easy laryngoscopy based on sonographic parameters. Cormack lehane grade was noted at the time of intubation in patients requiring intubation. **Inclusion criteria:** All the patients above 18 years in whom intubation is compulsory. **Exclusion criteria:** Less than 18 years. Previously exposed to any neck radiation. Tracheostomized patients. **Results:** Results will be declared on the day of presentation.

117. The Predictive Ability of SAPS II, APACHE II, SAPS III and APACHE IV to Assess Outcome and duration of Mechanical Ventilation in Respiratory Intensive Care Unit.

Gaurav Jain

DOI: 10.5005/jp-journals-10071-23353.117

Objectives: To determine utility of SAPS II, APACHE II, SAPS III and APACHE IV scores in assessing outcome in mechanically ventilated patients in RICU and to predict duration of mechanical ventilation (MV). **Materials and methods:** A prospective observational study where 83 mechanically ventilated patients were grouped into group I ($n_1 = 40$, NIV) and group II ($n_2 = 43$, invasive ventilation) was conducted. SAPS II, APACHE II, SAPS III and APACHE IV scores based predicted mortality (PM) were collected at day 1, and day 3. Outcomes (on day 7) were grouped into negative and positive (NIV—negative outcome = home NIV, intubation or death; positive outcome = NIV free. Invasive group—positive outcome = extubation; negative outcome = death). Binary logistic regression was applied to predict duration of MV (≥ or <5 days). **Results:** The data was analyzed using SPSS version 17.0 trials. Comparisons of PM on day 1 with SAPS II ($p < 0.05$) and APACHE IV ($p < 0.007$) were significant predictors of clinical outcomes in group I whereas in group II, none of the system could predict significantly. On day 3, group I analysis revealed SAPS II ($p < 0.002$), SAPS III ($p < 0.03$) and APACHE IV ($p < 0.004$) based PM as significant predictors of outcome. APACHE II ($p < 0.05$) and APACHE IV ($p < 0.02$) PM were significant in group II. On day 3, APACHE IV could significantly predict ($p < 0.05$) duration of MV (≥5 or <5) while A-a gradient ($p < 0.09$) predicted poorly in group I. In group II, APACHE IV was a poor predictor ($p < 0.09$). Two full logistic regression models were also formulated for both the groups. **Conclusion:** Study concludes that day 3 severity scores are more significant predictors of outcome and duration. APACHE IV scoring system was found more effective than other systems, not only significantly differentiating outcomes of MV but also predicting duration of NIV.

118. A Comparative Study of King Vision Video Laryngoscope and Macintosh Laryngoscope for Intubation in the ICU.

Moturu Dharanindra

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Introduction: Limited physiological reserve of the patients and aspects of logistics in ICU make tracheal intubation in the ICU

potentially hazardous, this is even more worsened by insufficient time for airway assessment and preparation. The role of video laryngoscopes in airway management in the operating room for difficult airway has been validated but their use in ICU has not been extensively studied. **Aims and objectives:** To study the difference between Macintosh laryngoscope and King vision video laryngoscope-channeled blade in terms of ease of intubation-measured by number of attempts at intubation, time taken for intubation, manipulation required for intubation. Laryngeal view obtained and associated airway morbidity. **Materials and methods:** One hundred and forty patients in the age group of 18–70 years requiring intubation in the intensive care unit for any physiological derangement. Sample size estimated as 70 in each group considering laryngeal view cormack lehane grade I in video laryngoscope group as 75.6% and in Macintosh group as 52.5%, 80% power, 5% alpha error. Randomization was done using SNOSE method and MOCOCHA score was used to assess airway, intubation was achieved following standard guidelines in both the groups. **Results:** A total number of 140 patients were studied with 70 patients in each group. Ease of intubation—the King vision video laryngoscope had higher 1st attempt success at endotracheal intubation 95.5% compared to 81% with Macintosh laryngoscope ($p = 0.001$), The mean time taken for intubation with King vision video laryngoscope was significantly less—13.60 ± 2.55 seconds compared to Macintosh laryngoscope 19.84 ± 2.73 seconds ($p < 0.001$), Manipulation during intubation was required in only 10% of the patients with video laryngoscope compared to 23% with Macintosh laryngoscope, the laryngeal view was better with King vision laryngoscope (77% had cormack lehane grade I) compared to Macintosh laryngoscope (8.5% had Cormack–Lehane grade I) ($p < 0.0001$), airway morbidity was more with Macintosh compared to King vision video laryngoscope (11% vs 3%). **Conclusion:** King vision video laryngoscope has better intubation characteristics viz. glottic visibility, first attempt success at intubation, the time required for intubation compared to Macintosh laryngoscope in the studied set of the population in ICU.

119. Experience of a Tracheostomy Outreach Service in a Quaternary Referral Centre-insights from the Global Tracheostomy Collaborative.

Krishnaswamy Sundararajan

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Introduction: Tracheostomy is a common requirement in critically ill patients needing intensive care unit (ICU) admission. The health economic implications of tracheostomy and prolonged ventilation are very significant as it's a resource intensive intervention requiring multispecialty and multidisciplinary intervention. **Objectives:** To evaluate the outcomes in patients undergoing tracheostomy in a quaternary referral center using the data linkage made available by the global tracheostomy collaborative (GTC). **Design, setting and participants:** A retrospective review of prospectively collected data set in patients who underwent tracheostomy in an ICU at a quaternary referral center having a shared model of care with respect to surgically inserted and percutaneously inserted tracheostomies. **Results:** In comparison to the GTC benchmark, the length of stay (LOS) of tracheostomy patients under ICU governance was high (50.3 days vs 47.3 days) the cannulation time was similar (26.6 days vs 26 days). The decannulation rate was higher than average (91.3% vs 54.9%). The adverse event rate was less than GTC benchmark (7.6% vs 18.1%). In terms of case mix, our cohorts were predominantly surgical/trauma as compared to the medical patients in the reference set. From a procedural point of view, we had a 65% vs 35% split in surgically inserted vs percutaneously inserted tracheostomies which was similar to benchmark data. However, in terms of discharge destination, ours were predominantly rehabilitation units (considerably more than average); whereas other sites have more discharges home (certain index hospitals in the GTC dataset based in United States can access other long-term care facilities/skilled nursing facilities). **Conclusion:** The clinical service delivery in this organization is on par with other services enlisted with the GTC without any significant deviation from accepted standards of care apart from length of stay which appear to be influenced by factors extraneous to care provision in this quaternary hospital.

120. A Randomized Controlled Trial Comparing Noninvasive Ventilation Delivered Using Neurally Adjusted Ventilator Assist (NAVA) or Pressure Support Ventilation (PSV) in Acute Respiratory Failure.

Inderpaul S Sehgal

DOI: 10.5005/jp-journals-10071-23353.120

Objective: Whether the application of neurally adjusted ventilator assist (NAVA) would improve clinical outcomes during noninvasive ventilation (NIV), remains unknown. Herein, we compare the clinical outcomes between NAVA and pressure support ventilation (PSV) delivered noninvasively in subjects with acute respiratory failure (ARF). **Design:** A randomized control trial comparing NAVA with PSV to deliver NIV. **Setting:** Respiratory intensive care unit of a tertiary care center. **Patients:** Consecutive subjects with ARF requiring NIV were randomized 1:1 to receive either NAVA or PSV. **Measurement and results:** The primary outcomes were NIV failure rates and 28-day mortality. The secondary outcomes were asynchrony index (AI), the duration of mechanical ventilation, the time to intubation, the visual analog scale scores for physician's ease of use and patient comfort, NIV-related complications, intensive care unit (ICU)-and-hospital length of stay, and 90-day mortality. We enrolled 100 subjects (NAVA = 50, PSV = 50; 60% males) with a mean ± SD age of 56.7 ± 12 years. There was no difference in the NIV failure rates (30% vs 32%; $p = 0.829$) and 28-day mortality (18% vs 34%, $p = 0.068$) between the NAVA and PSV arms, respectively. The use of NAVA resulted in lower 90-day mortality (22% vs 42%; $p = 0.032$). The median AI was significantly lower with NAVA (6.7 vs 44.8; $p < 0.001$). The use of NAVA significantly reduced abdominal distension (6% vs 20%; $p = 0.04$) and facial excoriation (14% vs 36%: $p = 0.01$). The other secondary outcomes were similar between the two groups. **Conclusion:** The use of NAVA during NIV did not improve NIV failure rates or 28-day mortality in subjects with ARF. However, the 90-day mortality, AI, and the NIV-related complications were less with NAVA.

121. Role of Noninvasive Positive Pressure Ventilation (NIPPV).

Srang Patil

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Introduction: Endotracheal intubation and mechanical ventilation can be a life-saving procedure. However, the use of artificial airways may lead to infectious complications and injury to the airways. Noninvasive ventilation is an alternative approach that was developed to avoid these complications in patients with acute respiratory failure. It is often used for acute exacerbations of

chronic obstructive pulmonary disease, because such exacerbations may be rapidly reversed and because the hypercapnic ventilatory failure that occurs in patients with this disorder seems to respond well to noninvasive ventilation. Noninvasive positive pressure ventilation (NIPPV) as an alternative to the endotracheal intubation or tracheostomy is associated with less infectious complications and reduced chances of injury to the airways. If such treatments could be successful in reducing the requirements of invasive mechanical ventilation (IMV) in patients with respiratory failure, it could have a potentially favourable impact on the allocation of the sparse health resources to other reversible causes of respiratory failure. **Aims and objectives:** To study the role of noninvasive positive pressure ventilation. (NIPPV) in intensive care unit. To study the success of NIPPV in reducing the requirements of invasive mechanical ventilation (IMV) in patients with respiratory failure. To study the incidence of ventilator associated pneumonia (VAP) in patients on mechanical ventilator. To study the overall reduction in the cost of treatment and ICU stay in patients on NIPPV compared to invasive mechanical ventilation (IMV). **Materials and methods:** We conducted a prospective observational cohort study which included 100 patients with type II respiratory failure with the commonest diagnosis of COPD exacerbation with pulmonary hypertension (newly diagnosed) with or without associated comorbidities and right heart failure. Noninvasive positive pressure mechanical ventilation (NIPPV) was applied in patients with good GCS (more than 13) who were conscious and oriented and in respiratory distress with hypoxia, tachycardia and raised respiratory rate with respiratory acidosis in the early phase without directly doing endotracheal intubation or tracheostomy and the response was observed. **Sample Size:** 100 patients. In a BiPAP mode inspiratory pressure (IP) was kept 8–10 cm above the end-expiratory pressure (EP). If PSV mode was used for NIPPV the IP to start with was kept on 15–20 cm H2O with a small PEEP of 4–5 cm H_2O. Patients were monitored in intensive care unit with clinical improvement, ABG, routine investigations, procalcitonin (PCT) levels and CRP levels. **Inclusion criteria:** Respiratory acidosis. Type II respiratory failure. COPD patients with history of smoking and or chula exposure for more than 10 years. Pulmonary hypertension (newly diagnosed or on medications). Right heart failure. **Exclusion criteria:** Patients not consenting for the study. Patients with poor GCS. Patients not obeying commands. Patients with myocardial infarction. Patients with cerebral stroke. Patients with long-term oxygen therapy at home. Patients with valvular heart diseases. **Results:** The study cohort had a male preponderance (86/100) with a mean (SD) age of 62.36 (12.34) years. Mean age of the patients who failed NIPPV was significantly higher than those who succeeded. The most common symptom on presentation was breathlessness seen in all the patients. In our study cohort, the most common clinical diagnosis included COPD exacerbation, 95% (95/100) with or without associated comorbidities. Patients with a poor level of consciousness were associated with a poor response to NIPPV, ultimately requiring intubation. Respiratory rate at admission was significantly ($p < 0.001$) higher in NIPPV nonresponders as compared with NIPPV responders, and this could possibly be used to predict response to NIPPV. Mean pH value on admission was significantly lower ($p < 0.001$) in patients who failed NIPPV, i.e., 7.09 compared to that in NIPPV successful group 7.213 (patients with pH < 7.3 were enrolled in our study). Thus patients with pH between 7.2–7.3 fared well on NIPPV and were successfully weaned. This could perhaps set a lower limit of pH as an indication for NIPPV. Noninvasive positive pressure ventilation was associated with significant improvements ($p < 0.001$) in pH from 7.213 to 7.324 after 1 hour of application. This improvement continued up to the time of weaning and was maintained postweaning. Mean $PaCO_2$ value at admission was significantly higher ($p < 0.001$) in patients who failed NIPPV (99.5) compared with NIPPV responders (69.10) and, thus, could also possibly be used to predict response to NIPPV. There was a significant improvement ($p < 0.001$) in the mean $PaCO_2$ levels within an hour of application of NIPPV from 69.10 to 55.36 mm Hg. This improvement continued up to weaning and was maintained postweaning from IPPV. Noninvasive positive pressure ventilation was associated with significant improvements ($p < 0.001$) in HCO_3 levels at 1 hour of application. This improvement continued up to the time of weaning and was maintained postweaning corroborating with improvements in $PaCO_2$. There was a significant improvement ($p < 0.001$) in the mean PaO_2 levels within an hour of application of NIPPV from 75.12 mm Hg to 100.57 mm Hg. This improvement continued up to weaning. A small insignificant fall was seen 6 hours postweaning. The study, thus, demonstrated that NIPPV is not only a feasible ventilatory modality but also a treatment that is associated with significant improvements in clinical and biochemical outcomes. Noninvasive positive pressure ventilation with BiPAP was successful in 76% of patients in our study cohort with 76 patients weaned successfully off NIPPV. Noninvasive positive pressure ventilation, thus, circumvents the complications of IMV like VAP, injury to airways, barotrauma, and postintubation laryngeal and tracheal stenosis while retaining the benefits of positive pressure ventilation. Patients improved on noninvasive ventilator with 76% patients were successfully wean-off ventilator within 4–5 days as evidenced by clinical improvement and serial ABG monitoring. The risk of infections and antibiotics requirement reduced significantly in patients on noninvasive ventilator as evidenced by serial reduction in procalcitonin (PCT) levels and CRP levels and were successfully de-escalated injectable antibiotics within 4–5 days. Twenty four percent however did not improved as evidenced by clinical parameters and serial ABG's and were to be intubated with endotracheal tube. Of these 24% intubated patients 60% died with sepsis and multiple organs failure (MODS) within 7 days of intubation. The incidence of ventilator associated pneumonia (VAP) was 80% in intubated patients and 10% in those on noninvasive ventilator. There was significant improvement with NIPPV in form of increase in pH and PaO_2 and decrease in $PaCO_2$ and HCO_3 after 1 hour of NIPPV application, which also persisted after successful weaning. Use of NIPPV was associated with less risk of nosocomial infections, less antibiotic use and lower mortality.

122. Comparison between Fiber Optic Guided and USG Guided Percutaneous Tracheostomy.

Avishek Chakma

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Background and aims: Percutaneous tracheostomy (PCT) may be performed under either ultrasonography (US) guidance or fiberoptic (FOB) guidance. Very few studies have compared US and FOB guided PCT technique related posterior tracheal injury. Hence, aim of our study is to compare incidence of posterior tracheal injury in both techniques using Grigg's method. **Materials and methods:** After clearance from Ethical Committee 30 ICU patients were randomly categorized into two equal group viz., US-PCT

(US-guided PCT) and FOB-PCT (fiberoptic-guided PCT) (n = 15). Parameters recorded were number of times posterior tracheal wall hit by introducing needle and howard kelly forcep, no of needle puncture attempt, puncture site in relation to center of trachea, total duration of each procedure. **Results:** In USG-PCT group, number of times posterior tracheal wall was hit either by the introducing needle or howard kelly forcep: once in 5 cases, twice in 4 cases, thrice in 3 cases and none in 3 cases whereas it was never hit in FOB-PCT group. Mean duration in FOB-PCT was 17.2 minutes vs 14 minutes in US-PCT group. In FOB guided, puncture site was at 12 o'clock in 13 cases and in 2 cases, at 11 o'clock. In USG guided, site was between 9 and 12 o'clock in 11 cases and at 12 o'clock in 4 patients. The mean number of needle puncture in FOB is 1 and in USG guided 2.13. **Conclusion:** USG-PCT has advantage of shorter duration, being informative with regard to neck anatomy and vascularity but number of needle puncture attempt is more, not in central site and it cannot visualize tip of introducing needle or Grigg's forcep during the procedure hence higher incidence of posterior tracheal wall injury (Table 7).

Table 7: Number of times posterior tracheal hit

Technique	None	1	2	3
US PCT	3	5	4	3
FOB PCT	0	0	0	0

123. Prevention of Pressure Ulcer in Patients with Prone Ventilation for Hypoxic Respiratory Failure: A Retrospective, Comparative Observational Study.

Shivangi Mishra

DOI: 10.5005/jp-journals-10071-23353.123

Objectives: Prone positioning is an accepted method for improving oxygenation in patients with adult respiratory distress syndrome. The incidence of pressure ulcer in proned patients is 20%, being double of supine patients. We noticed an increased occurrence of pressure ulcer in patients proned with headrest and pillow for chest and pelvis. Based on literature we changed our proning practice. We are presenting a retrospective comparative observational study to assess the effect of two different strategies for prevention of pressure ulcer in patients undergoing prone ventilation for hypoxic respiratory failure. **Materials and methods:** We compared incidence of pressure ulcer between the two preventive strategies for proning in patients with hypoxic respiratory failure. We also compared effect of the two preventive strategy on oxygenation, ventilation, other complication and 28 days mortality. In routine practice group, patients were proned with pillow support for chest and pelvis, eye protection, gel-pads for elbow and knee, air mattress and headrest. Observational group were proned on alternating pressure air mattress, eye protection, Mepilex® Border silicone dressing and gel-pads for bony prominence. Use of pillows and headrest was abandoned. **Results:** Total 40 patients were included in the study, of which 20 patients had received proning with routine method while 20 patients received observational method. Both the groups were comparable demographically. Maximum number of cases in both groups were due to H1N1 infection (47.5%). Both the groups were comparable in terms of Braden scale and total duration of proning. Incidence of proning was higher in group receiving routine preventive strategy but didn't reach statistical significance. (p = 0.11). **Conclusion:** Though the incidence of pressure ulcer was less in observational group compared to routine practice group, it failed to reach statistical significance. This is probably related to small study population. We suggest further studies with larger study population.

124. A Randomized Controlled Pilot Trial to Investigate the Utility of Endotracheal Cuff Pressure Monitoring in Mechanically Ventilated Children in Preventing Post Extubation Stridor (PES).

J Yeshwanth Reddy

DOI: 10.5005/jp-journals-10071-23353.124

Objective: To determine if implementing a protocolized measurement of endotracheal tube (ETT) cuff pressure measurement when using cuffed ETT throughout the course of mechanical ventilation (MV) in children would decrease the rate of postextubation stridor (PES) compared to standard care. **Materials and methods:** This is a single center randomized controlled pilot trial performed between 1st June 2017 and 31st March 2019. Children between 1 month and 18 years age who requiring MV through a cuffed ETT were included except those with (1) upper airway anomaly, (2) died while on MV, (3) received tracheostomy before extubation, (4) transferred before extubation. After obtaining consent, we randomized eligible children by using sealed envelope into two groups—in standard care (SC) group, ETT cuff inflation was adjusted by clinical assessment (bedside minimal leak technique and monitoring the percentage of leak displayed on ventilator display) at 6 hours interval. In monitoring group (MG), we implemented a protocol of measuring cuff pressure every 6th hourly with cuff pressure manometer (Portex manometer) and adjusting the pressure between 20 mm Hg and 25 mm Hg. Patients who required nebulized epinephrine within 24 hours of extubation for upper airway obstruction were defined as having PES. **Results:** During study period, 543 children were mechanically ventilated in our center. Of these, 266 patients met eligibility criteria. Of the 266 patients that were randomized, 106 children were excluded due to various reasons. One hundred and sixty children were randomized into SC group and MG group (1:1). Seven patients in group SC and 5 patients in group MG developed stridor (p value > 0.05). Secondary outcomes like incidence of VAP, ventilator days, length of PICU stay are no different in both groups. **Conclusion:** Larger multicenter studies can confirm our findings and bring an end to practice of performing frequent ET cuff pressure measurements and more emphasis shall be placed on bedside clinical assessment.

125. Effect of Ultrasound Guided Ventilatory Protective Strategy on Intraoperative Arterial Oxygenation during Thoracic Surgery.

Deyashinee Ghosh

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Objectives: One lung ventilation (OLV) is necessary to for surgical access and to protect healthy lung during thoracic surgeries. A common complication during OLV is impaired gas exchange causing tissue hypoxia. Pressure controlled ventilation (PCV) with adjunctive use of pressure support (PS) and positive end expiratory pressure (PEEP) is advocated to maintain balance between hypoxemia and lung injury. Concurrent use of lung ultrasonography to individualize PS may help to prevent iatrogenic lung injury while further improving oxygenation. Lung ultrasound to assess aeration correlate well with arterial blood gas (ABG) values obtained simultaneously. We aimed to determine utility of ultrasound guided

ventilatory strategy on intraoperative oxygenation, other ABG parameters during thoracic surgery. **Study design, materials and methods:** In prospective, outcome-assessor blinded, randomized, comparative design, 40 patients (group I: 20, group II: 20) were posted for thoracic surgery requiring minimum 1 hour of OLV. Left double lumen tube was used. In both groups, patients were ventilated using predetermined strategies (A: recommended parameters; B: ultrasound determined parameters) using 100% O_2. ABGs were analyzed at specific times (T1: 30 minutes after two lung ventilation, T2: 30 minutes after OLV, T3: end of surgery). Primary outcome was to compare PaO_2 among groups at these timepoints. Secondary outcomes were to assess other ABG parameters, airway pressures. Data was analyzed using Chi-square test. Statistical significance was accepted at $p < 0.05$. **Results:** Higher PaO_2 was noted in group II vs in group I at all timepoints and was statistically significant {T1: A—353.26 ± 38.15 mm Hg, B—374.53 ± 25.94 mm Hg ($p < 0.05$); T2: A—272.61 ± 37.87 mm Hg, B—321.68 ± 35.22 mm Hg ($p < 0.05$); T3: A—295.26 ± 40.08 mm Hg, B—356.97 ± 24.68 mm Hg ($p < 0.05$)}. Other parameters assessed also showed better preservation of physiological status in group II. **Conclusion:** Gradual increase of PS in PCV targeted by visualization of lung aeration using ultrasonography achieved better intraoperative oxygenation when compared to standard PCV during OLV.

126. Predictors of Mortality and Complications Related to Prone Ventilated Patients with ARDS.

Joanne Rodrigues

DOI: 10.5005/jp-journals-10071-23353.126

Background: Prone ventilation is probably the most efficient and economic of strategies to manage refractory hypoxemia in intensive care practice in our country. Prone ventilation in severe acute respiratory distress syndrome (ARDS) is known to have a mortality benefit. The practice of prone ventilation in poor resource settings has not been adequately described. Factors associated with failure of prone ventilation have not been well studied. **Objectives:** Describe profile of patients prone ventilated in a middle-income setting and identify mortality predictors. **Materials and methods:** Setting: a prospective observational study conducted in a 19-bed tertiary level critical care unit with 2 ICUs (with 13 beds and 6 beds) the need for prone ventilation was as per the discretion of the intensive care specialist. The main outcome of interest was mortality after prone ventilation. Other outcomes: morbidity (ICU free stay, hospital free stay, complications), responders to prone ventilation (increase in P/F ratio by 50%), and complications of prone ventilation. Data collection was done by 2 study investigators collect patient demographic details, organ dysfunction and life support details, prone ventilation related complications and outcomes details during the study period and transcribe results onto an excel sheet for analysis. **Results:** In a period of 15 months prone ventilation was administered 46 patients with ARDS who had a mean age of 39.8 (±16.9) years with 27 males (58.7%) we observed that the mean duration of proning was 23 hours, mean APACHE score 20.2 (±8.3), admission SOFA score 9.8 (±5.3), mean P/F ratio before proning was 92.9 (±37.9), PEEP 10.5 (±1.8), mean driving pressure 20.15 (±3.4), mean airway pressure 19.5 cm H_2O (±2), oxygenation index 21.5 (±9.5). Cause of ARDS was extrapulmonary in 15 patients (32.6%), 13 patients (29.7) were nonresponders, 22 (47.8) were on high dose vasopressors. Only complication related to proning was pressure sores in 20 patients (43.5%). Multiple logistic regression analysis revealed SOFA score as a risk factor for mortality; OR 1.34 CI 1.08–1.66. **Conclusion:** Admission SOFA score is a predictor of mortality in prone ventilation and could be used to prognosticate as well as dictate other strategies in management of ARDS.

127. Comparing Only NIV vs NIV with HFNC for Successful Extubation from Mechanical Ventilation in Patients High Risk for Extubation Failure.

Santanu Bagchi

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Objective: Extubation failure is a not-so-uncommon entity in intensive care units (ICU), particularly among patients with higher risk of extubation failure. Noninvasive ventilation (NIV) has been commonly instituted in the immediate postextubation phase for prevention of extubation failure, albeit with mixed results. High flow nasal cannula (HFNC) has also been used in postextubation period, for the same purpose. We wished to combine both the modalities in high-risk group of patients and observe the outcome. **Materials and methods:** A prospective randomized controlled study was designed among patients getting mechanically ventilated in our respiratory ICU. Only the patients with high-risk for extubation failure who got mechanical ventilation for more than 24 hours were included in the study. The duration of the study was six months (May 2019 to November 2019). Patients were randomly allocated to either group, immediately after extubation. The primary outcome was reintubated status on day 7 of extubation and secondary outcome was ICU mortality. **Results:** Total 483 patients were included in the study. Out of that study population, 13.5% (34/252) patients in the NIV group needed reintubation while 11.7% (27/231) patients in the NIV + HFNC group needed reintubation and the result was not statistically significant ($p = 0.87$). On the secondary outcome, the two groups again didn't show any significant statistical difference. **Conclusion:** Our study revealed that there is no significant difference in preventing extubation failure between two groups with either NIV alone or NIV with HFNC together being instituted in the immediate postextubation period. We didn't find any mortality benefit, either, among the two groups.

128. Predictive Performance of CSF Lactate vs CSF Procalcitonin vs Combined CSF Lactate and Procalcitonin for the Diagnosis of Bacterial Meningitis after Neurosurgery.

Gopinathan T

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Postoperative bacterial meningitis (PBM) is a serious potential complication after neurosurgery. Early diagnosis and treatment are necessary to reduce the rate of fatal outcomes. However, PBM is not easily differentiated from postoperative aseptic meningitis (PAM), which usually has favorable clinical outcomes. Combined CSF lactate and procalcitonin has been found to be a useful marker for distinguishing postoperative bacterial meningitis (PBM) from postoperative aseptic meningitis (PAM). Considering the cost of se. procalcitonin we investigated the predictive performance of CSF lactate vs CSF procalcitonin vs combined CSF lactate and procalcitonin for differentiating postoperative bacterial meningitis (PBM) from postoperative aseptic meningitis (PAM) in symptomatic post neurosurgery patients. **Objectives:** To evaluate the diagnostic value of CSF procalcitonin and lactate individually as well as combined novel markers of meningitis in hospitalized postneurosurgical patients. **Materials and methods:** This retrospective clinical study was performed using CSF samples, collected by lumbar puncture, from 157 suspected meningitis in postneurosurgical patients. The levels of CSF procalcitonin and lactate were assessed for diagnostic value individually as well as in combination using a two by two table. **Results:** Seventy-four of One hundred and fifty-seven patients were diagnosed with meningitis based on clinical symptoms and laboratory results including CSF lactate and procalcitonin. These patients showed significantly elevated levels of CSF procalcitonin and lactate. The cutoff values for diagnosis of PNBM were: 0.5 ng/dL (sensitivity, 60%; specificity, 94%) for procalcitonin and 40 mg/dL (sensitivity, 33.33%; specificity, 98.18%) for lactate. A parallel test combining the levels of these two markers showed increased sensitivity (73.3%) and specificity (92.7%), compared with CSF culture reports. **Conclusion:** Our study showed that combined CSF lactate and procalcitonin method of managing postoperative bacterial meningitis (PBM) had a better predictive performance than CSF lactate or procalcitonin alone, in postneurosurgical patients.

129. An Unusual Cause of Weaning Failure.

Sateesh C Alavala

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Introduction: Obstructive fibrinous tracheal pseudomembrane (OFTP) is a rare complication of the tracheal intubation that can manifest as stridor and/or respiratory failure following extubation. We report a case of OFTP that was successfully managed with rigid bronchoscopy. **Case description:** An 18-year-old female, admitted to ICU with scrub typhus ARDS, was extubated on the tenth day of invasive ventilator support after a successful spontaneous breathing trail. Immediately after extubation she developed breathlessness which was managed with noninvasive ventilator (NIV) support. After few hours her breathlessness worsened and developed stridor following a bout of severe cough. An emergency flexible bronchoscopy, performed through the NIV mask while patient receiving NIV support, revealed a thick membranous structure extending from the vocal cords to the mid trachea forming a ring like structure adherent to tracheal mucosa. The anterior portion of the membrane was separated from the trachea resulting in collapse during expiration causing dynamic airway obstruction. Noninvasive invasive ventilator support was continued to relive the dyspnea. She was immediately shifted to operation theater on NIV support and an emergency rigid bronchoscopy was performed for the removal of pseudomembrane. Postprocedure her general condition improved and was discharged on the following day. A follow-up flexible bronchoscopy after one month of discharge did not show recurrence of the pseudomembrane. **Conclusion:** Obstructive fibrinous tracheal pseudomembrane is a rare complication of endotracheal intubation that can result in respiratory failure and rarely death if the diagnosis is delayed. Partial separation of membranes from the tracheal wall can result in dynamic airway obstruction. Noninvasive invasive ventilator is helpful in such cases as positive pressure ventilation can act as a splint that can prevent collapse of the membrane during expiration. Diagnosis is usually by flexible bronchoscopy and definitive therapy involves removal of the membrane with the help of rigid bronchoscope.

130. An Unusual Case of Difficult Weaning.

Sushmitha Jakka

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Introduction: Mediastinal cysts are benign lesions comprising 10–18% of radiologically detected masses in mediastinum that can result in various complications like secondary infection, local pressure effects and malignant transformation. We describe a case of mediastinal cyst which was infected secondary to endobronchial ultrasound (EBUS) guided fine needle aspiration leading to sepsis and difficult weaning. **Case description:** A 65-year-old male without any previous comorbidities presented to the emergency with complaints of high-grade fever and breathlessness. Four days prior to the present complaints he underwent EBUS guided aspiration of mediastinal cyst which showed brownish fluid that was sterile on culture. On admission to ICU, patient was in respiratory distress with a blood pressure of 80/50 mm Hg. He was immediately intubated and connected to ventilator. A provisional diagnosis of septic shock secondary to infected mediastinal cyst was made and broad-spectrum antibiotics and other supportive therapies were initiated. His fever persisted, repeated spontaneous breathing trails (SBT) failed and he could not be weaned off from the ventilator. We performed percutaneous drainage of the mediastinal cyst by inserting a single lumen central venous catheter under ultrasound guidance, using seldinger technique from the right supraclavicular region. A total of 300 mL of foul-smelling pus was drained after which his fever resolved and he could be successfully weaned off from the ventilator support. **Conclusion:** Infected mediastinal cyst could be a source of infection leading to sepsis and may cause mass effect over trachea that can result in weaning difficulty. Definitive treatment involves surgical excision of the cyst. In patients who are very poor candidates for surgery, ultrasound can be very helpful in the drainage of infected cyst contents. Aspiration of the lesion could help both in control of sepsis and liberation of patient from the ventilator.

131. Comparison of Subglottic Secretion Drainage Endotracheal Tubes of Two Different Manufacturers used in Critically Ill Patient on Mechanical Ventilation.

Mumtaz Hussain, Sanjeev Kumar

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Introduction: Several studies claim that subglottic secretion drainage endotracheal tubes (SSD-ETT) can reduce the ICU stay of patients on mechanical ventilators by decreasing ventilator associated pneumonia (VAP). Nowadays various manufacturers like Smiths

Healthcare, Sterimed Surgicals and Romsons, etc., have launched such types of endotracheal tubes with subglottic-suction device. It is observed that most of the studies were done with SSD-ETT (Blueline Sacett, Smiths Healthcare). The studies related to quality, function and efficacy of endotracheal tubes with subglottic-suction device of others manufactures are still awaited. Here, we aimed to compare endotracheal tubes with subglottic device of two different manufacturers used in critically ill patient on mechanical ventilation. **Aim:** To compare the incidence of VAP and associated complications with subglottic secretion drainage endotracheal tubes of two different manufacturers. **Materials and methods:** Ninety critically ill patients aged 18–65 years, requiring endotracheal intubation and mechanical ventilation for the management in ICU and anticipated to remain on ETT for >48 hours were randomly divided into 3 groups of 30 each, where in group I, SSD-ETT (Blueline Sacett, Smiths Healthcare), in group II, ETT with subglottic suction (Sterimed Surgicals) while in group III standard endotracheal tubes (ETT, Smiths Healthcare) were used. **Results:** The data of 90 patients were analyzed. It was found that the incidence of clinical VAP in group I, group II and group III are 10%, 16.7% and 30%, respectively while that of microbiological VAP in group I, group II and group III are 16.7%, 36.7% and 56.7%, respectively. The results were statistically analyzed. Additionally, while comparing between endotracheal tube with subglottic devices it was observed that the ease of insertion in group I was better than group II and laryngeal trauma was also less in group I than group II. **Conclusion:** There was significant difference in the incidence of clinical and microbiological VAP among the groups; provided other strategies for VAP prevention methods were kept similar. SSD-ETT (Blueline Sacett, Smiths Healthcare) is better than ETT with subglottic suction (Sterimed Surgicals) in prevention of VAP.

132. Comparative Study of the Degree of Neck Extension in ICU Patients undergoing for Ultrasound Guided Percutaneous Dilatational Tracheostomy vs Landmark based Percutaneous Dilatational Tracheostomy.

Sanjeev Kumar

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Introduction: Percutaneous tracheostomy (PCT) is a commonly performed bedside procedure in the intensive care unit (ICU). Patients with cervical injury have limited neck extension, where PCT with land mark technique is usually very difficult. Several reports propose that ultrasound guided PCT help to delineate the neck anatomy prior to tracheal puncture and prevent pretracheal vascular injury and ensure proper tracheal tube placement. **Aims and objectives:** This study aimed to compare the efficacy and safety of percutaneous tracheostomy especially in form of the degree of neck extension by using ultrasound guided percutaneous dilatational tracheostomy with landmark based percutaneous dilatational tracheostomy. **Materials and methods:** Total 60 patients admitted in ICU were randomly selected after obtaining informed consent, which required tracheostomy for anticipated prolong ventilator support. Patients were divided in two random groups of 30 each as groups I and II, where single stage dilator technique tracheostomy kit (Ultra-Perc, Smiths Medical) and Sonosite M-Turbo portable ultrasound machine were used. In groups I patients underwent for PCT by using landmark method while in groups II patients underwent for PCT with ultrasound guided out-of-plane method. The puncture sites were kept between the first and third tracheal rings. Demographic data of this study was recorded as per need. The degree of neck extension in each procedure was noted with the help of a compass made by two scales. Apart from this success rate of tracheal puncture at first attempt, total tracheostomy time and complications during and after the procedure were recorded. **Results:** Out of total 60 patients, 57 patents were analyzed and 3 were dropped out from this study due to technical difficulty. In group I, the success rate of tracheal puncture at first attempt was 21 (75%), while that of in group II was 25 (86.2%). Total tracheostomy time in group I was 12 ± 0.5 minutes, while that of in group II was 9.0 ± 1.5 minutes. The degree of neck extension in group I and group II were 36° ± 3° and 21° ± 2°, respectively. The complication mainly bleeding was seen in 3 (10.7%) patients, while that of in group II was 1 (2.4%). **Conclusion:** We found PCT with ultrasound guided is superior method than landmark method not only for more success rate of tracheal puncture at first attempt, but also lessen total tracheostomy time and complications. It also requires less degree of neck extension, which is more beneficial in cervical traumatic patient.

133. Workplace Violence against the Nurses Working in a Tertiary Care Teaching Hospital of Eastern Nepal.

Ram S Mehta

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Objectives: Workplace violence in the health sector is a worldwide concern with healthcare workers begin at high risk of being victims. The objectives of this study was to assess workplace violence against nurses working in BP Koirala Institute of Health Science, to find out the perpetrators, to assess the reasons of workplace violence and to find out the association of workplace violence with selected variables. **Materials and methods:** A descriptive cross-sectional study design was carried out using self-administered questionnaire to collect data on different aspects of workplace violence against nurses working in BP Koirala Institute of Health Sciences. Population proportionate simple random sampling technique was used for data collection. Total 110 calculated samples having job experience for at least one year were enrolled in the study. **Results:** The majority of subjects (94.5%) heard about the workplace violence against nurses. The most experienced violence was verbal abuse in the form of shouting (92.6%) and threat (37%). The common perpetrators were visitors (85.2%), patients (32%), staff members (14.7%) and doctors (13.5%). About 42% of the respondents reported that lack of information and communication was the reason behind the violence. There is no association between workplace violence and demographic variables except education level. **Conclusion:** Based on the study findings it can conclude that more than two-third nurses faced the workplace violence within last 12 months. The common perpetrators were visitors, patients, staff members and doctors. The workplace violence is not significantly associated with age, marital status, religion and ethnicity whereas significantly associated with education level.

134. Effect of Perioperative Hemoglobin Concentration on Cerebral Oxygen Extraction and Neurological Outcome in Aneurysmal Subarachnoid Hemorrhage.

Ankur Luthra

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Background: The decrease in hemoglobin concentration (Hb) levels has a better rheological and cerebral perfusion spectrum, but also decreases the cerebral oxygenation due to decrease in the oxygen carrying capacity. On the contrary, higher Hb levels compromises blood rheology and also decreases cerebral perfusion. Optimal Hb in subarachnoid hemorrhage (SAH) patients is still controversial for a better outcome of the SAH patients. **Materials and methods:** Patients undergoing aneurysmal clipping for ruptured SAH were included. After induction according to institutional protocol, patients were additionally monitored with serial ABG and $SjvO_2$ and Hb after jugular venous catheterization. Samples were obtained hourly in the intraoperative period and twice daily for three days in postoperative period to know Hb and oxygen extraction in cerebrum. Outcome of the patients were measured with MRS and GOS-E at 7 days and 3 months, respectively and correlated with Hb and cerebral oxygen extraction. **Results:** Out of the 86 patients recruited, 80 were included in the study. Pearson correlation between individual Hb values and outcome (good and poor) of MRS at 7 days didn't show any statistical significance. Statistically significant outcome of GOS-E at 3 months was obtained when correlated with intraoperative Hb ($p = 0.03$) and postoperative Hb ($p = 0.049$) values. Also, Hb and $AVDO_2$ values showed a positive linear relationship ($p < 0.001$). Multivariate analysis showed intraoperative Hb < 10 g/dL as one of the individual risk factors for unfavorable neurological outcome. **Conclusion:** Mean Hb of >10 g/dL during perioperative period has shown favorable neurological outcome at 3 months follow-up in SAH patients, but the results with liberal blood transfusion and erythropoietin are still to be explored.

135. Effect of Vitamin D Supplementation on the Postoperative Convalescence of Pediatric Cardiac Surgical Patients.

Chalattil Bipin

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Background: Vitamin D deficiency is highly prevalent in pediatric population and also in children with congenital heart disease. The serum level of vitamin D further decreases after congenital cardiac surgery with cardiopulmonary bypass. Available data from many studies suggest that most congenital heart disease (CHD) patients are vitamin D deficient following cardiac surgery and that the immediate postoperative serum levels are associated with the subsequent clinical course. **Objective:** The study was planned to assess the role of vitamin D in improving postoperative convalescence of the pediatric cardiac patients undergoing open heart surgery with cardio pulmonary bypass (CPB) and also simultaneously to study the vitamin D status preoperatively, after CPB and postoperatively in these cyanotic congenital heart disease (CCHD) children. **Materials and methods:** A total of 60 children from 6 months to 18 years of age with CCHD, tetralogy of fallot (TOF) who underwent intra cardiac repair (ICR) with cardiopulmonary bypass (CPB) were enrolled in this randomized controlled trial (RCT) study. Demographic data, preoperative, intraoperative and postoperative variables were compared between the study and the control groups. **Results:** All 60 study participants had vitamin D deficiency. Prevalence of severe vitamin D insufficiency was 93.1%. When compared with the control group, study group were more likely to have a higher serum vitamin D in the immediate preoperative period ($p = 0.0010$), immediate postoperative period following CPB ($p = 0.0129$), and 24-hour postoperative period ($p = 0.0038$). There was statistically significant change in the serum vitamin D levels between the two groups during CPB ($p = 0.0067$). **Conclusion:** Serum level of 25 (OH) vitamin D was severely low in CCHD children with TOF and also the serum vitamin D level further decrease after ICR with cardiopulmonary bypass in the study group. Preoperative vitamin D supplementation will help in treating the deficiency.

136. A Rare Event of Euglycemic DKA in Type II DM Patient with Recent Total Laryngectomy.

Pranav Kumar

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Background: Seventy seven-year-old male had a history of change in voice for 1 month. He is known case of type II diabetes and on regular OHA. With the help of biopsy and CECT, he was diagnosed with carcinoma larynx. Patient had received radiotherapy for his carcinoma vocal cord in 2016. Patient was operated on 15th February 2019 for total laryngectomy along with partial pharyngectomy with physician fitness prior. After 48 hours of uneventful stay in ICU, patient was shifted to ward. RT feeding was started after approx. 60 hours of NBM period. On 4th postoperative day, patient developed dyspnea. Biochemistry suggestive of high

AG metabolic acidosis. Blood sugar readings were remained <300 mg/dL throughout course. **Discussion:** The underlying mechanism of EDKA is either due to commonly occurring decreased hepatic production of glucose during fasting state or enhanced urinary excretion of glucose induced by an excess of counter-regulatory hormones. DKA management was started along with sepsis diagnostic workout. Patient was hemodynamically settled and serial ABGs were corrected to normal in 48 hours. No added pathology was detected and hence patient was transferred back to ward and then discharged with adjusted insulin and OHA doses. **Conclusion:** Early detection and prevention was helpful in this EDKA case as diagnostic and therapeutic dilemma always remains there.

137. Effectiveness of Nocturnal Dexmedetomidine Nebulization for the Prevention of Delirium in ICU Patient: A Randomized, Placebo-controlled Trial.

Neeraj Kumar

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Aims and objective: To determine effectiveness of nocturnal dexmedetomidine nebulization for the prevention of delirium in critically ill adults. **Materials and methods:** After Institutional Ethical Clearance and written informed consent. This randomized prospective double blinded placebo study will be conducted and a total of 100 critically ill nonintubated patients admitted in ICU AIIMS, Patna will be recruited. The patient will be evaluated for delirium before nebulization, and medication taking for sedation. Before start of nebulization base line CAM-ICU-7 scores, RASS and vitals like heart rate, oxygen saturation, and noninvasive blood pressure measurement will be taken. Patients of group I (50 patients) will be nebulized with dexmedetomidine 1 µg/kg and group II (50 patients) will be nebulized with 4 mL normal saline by using ultrasonic nebulizer for initial five days of ICU admission. **Inclusion criteria:** Age 18–60. Admitted to the ICU of more than 48 hours. Nonintubated patient. **Exclusion criteria:** Elderly patients age >60. Preexisting cognitive impairments. Allergic to dexmedetomidine. **Assessment:** Following methodology will be used for assessment of parameters. The CAM-ICU-7 delirium severity scale (CAM-ICU-7 scores categorized as 0–2: no delirium, 3–5: mild to moderate delirium, and 6–7: severe delirium) daily at 7 am for initial 10 days. RASS hourly after nebulization (from 10 pm to 7 am). Delirium duration in days. Midazolam consumption (mg) daily. Adverse effects like coma (RASS ≤ −4), hypotension, bradycardia, oxygen-desaturation, dry mouth, sneezing and coughing during and after nebulization. **Statistical analysis:** Statistical analysis will be done in collaboration with Department of Community and Family Medicine. To allow for study error and attrition, we will randomize 50 patients to each group. Independent Student's *t* test will be used to test the difference of quantitative variables or Mann–Whitney test (when the data sets will not normally distributed) between the two groups. **Results:** The primary outcome of this study will be the proportion of patients who remained free of delirium during their critical illness (i.e., ICU admission). Secondary outcomes will be sedation score (RASS) and midazolam consumption. Among subjects with delirium, its duration until it first resolved for at least 12 hours was measured. **Discussion:** Skrobik et al. used nocturnal low dose dexmedetomidine through intravenous route in critically ill adults. They found it to reduce the incidence of delirium during the ICU stay. Dexmedetomidine is a highly selective, centrally acting α-2 agonist, with hypnotic, analgesic, anxiolytic, sympatholytic and antisialogouge effects. Nebulized dexmedetomidine administration may allow rapid drug absorption through nasal, respiratory, and buccal mucosa, which allow bioavailability of 65% through nasal mucosa and 82% through buccal mucosa.

138. ICU Diary and the Patients' Family-experience in a LMIC. A Grounded Theory Approach.

Swagata Tripathy

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Objective: An ICU diary is a relatively new concept in low middle-income countries-LMICs. Illiteracy and sociocultural inhibitions may affect the use and utility of this intervention which has proven beneficial to patients and their families in the west. We aimed to explore how families of ICU patients experienced ICU diaries in our set up by using the grounded theory approach. A relatively new research tool, this enables exploration of phenomenon to build theories in areas hitherto unchartered. **Materials and methods:** A clinical psychologist did 28 in depth interviews of relatives of 13 patients admitted in the ICU for >24 hours for whom an ICU diary was being maintained. A three-step coding process-open, axial and selective coding was used, followed by formulation of a theory embedded in the data. **Results:** We found that the younger relatives of ICU patients accepted the idea better (age 30, SD 6) half (48%) had education between 5th and 10th standards. Emergent themes suggested that for the family members, reading and writing the diary brought novelty, acted as a communication enabler, spiritual truss, and improved knowledge leading to change in perspective about the healthcare system. It also became a bridge to community bonding after patient discharge. Starting with appreciating the novelty of "diary entries" which was a new and exciting concept, family members used the diaries to communicate with healthcare workers (to gain information and understanding about the disease and treatment) and the patient himself to express their love and to maintain a connection. The diary acted as a confessional for hopes, fears, guilt and faith for many members. As a tool it enabled them to understand medical personnel as human beings and to appreciate their efforts, effectively improving faith in the system. Finally, upon returning home, the diary was a crowd puller for extended family and neighbors encouraging discussions and improving bonding and information sharing. **Conclusion:** Our findings indicate a good acceptance of ICU diaries by family members in our ICU. With less literate, self-admitted "shy" members, in a society where "diary writing" is not culturally rampant, the appreciation for the novel concept was universal. We see a place for these interventions not only at the patient/family level, but also as a means to "correct" the image of healthcare workers in our society by humanizing ourselves to the end user—the patient and his family.

139. Incidence, Risk Factors and Impact, of Outcome, of Delirium in Patients of MICU of Tertiary Care Hospital.

Deepak P Gupta

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Objective: Aim of study is to determine the incidence, risk factors, and impact on outcome of delirium in a medical intensive care unit (ICU) using a prospective observational study. **Materials and methods:** Patients eligible for the study to be evaluated until discharge by the doctors to detect delirium using the confusion assessment method (CAM)-ICU. It is an instrument simple to use; the score varies from 1 to 7: level I refers to a patient who cannot respond to voice or physical stimulation and 7 to a combative violent patient. Every patient will be daily evaluated until his/her SAS score is ≥4, so he/she can be assessed for delirium using the CAM-ICU. According to

the CAM-ICU, patients has a diagnosis of delirium when an acute onset of mental status change and inattention was accompanied by either disorganized thinking or an altered level of consciousness. To define the duration of delirium, the study will daily calculate the delirium detection score (DDS) daily in delirious patients; this score evaluates five items: agitation, anxiety, hallucination, orientation, and paroxysmal sweating. A patient still has delirium if his/her DDS level is ≥8. **Patients:** All patients admitted to the ICU to be included if they were aged more than 18 years and had an ICU stay of more than 24 hours. Patients who had a cardiac arrest or have a history of dementia or psychosis to be excluded. Patients eligible for the study to be evaluated by the medical staff to detect delirium using the CAM-ICU. **Inclusion criteria:** Age > 18 years. ICU stay >24 hours. **Exclusion criterion:** Postcardiac arrest patients. Decision of not to resuscitate. Dementia or psychosis. **Sample size:** The study aims to observe 200 patients over a period of one years in Max Hospital Patparganj.

Confusion Assessment Method for the ICU (CAM-ICU)

Worksheet

Instructions: To evaluate for the presence of delirium in your patient, complete this clinical assessment every shift (8-12 hours).

CAM-ICU is a valid and reliable delirium assessment tool recommended by the Society of Critical Care Medicine (SCCM) in its 2013 Pain, Agitation, and Delirium (PAD) guidelines.

CAM-ICU	Criteria	✓ Present
FEATURE 1: Alteration/Fluctuation in Mental Status		
▪ Is the patient's mental status different than his/her baseline? **OR** ▪ Has the patient had any fluctuation in mental status in the past 24 hours as evidenced by fluctuation on a sedation scale (eg, RASS, Glasgow Coma Scale [GCS]), or previous delirium assessment?	If Yes for either question ▶	☐
FEATURE 2: Inattention 1: Alteration/Fluctuation in Mental Status		
Letters Attention Test: Tell the patient *"I am going to read to you a series of 10 letters. Whenever you hear the letter 'A,' squeeze my hand."* **S A V E A H A A R T** Count errors (each time patient fails to squeeze on the letter "A" and squeezes on a letter other than "A").	If number of errors >2 ▶	☐
FEATURE 3: Altered Level of Consciousness (LOC)		
▪ Present if the RASS score is anything other than Alert and Calm (zero) **OR** ▪ If SAS is anything other than Calm (4)	If RASS ≠0 **OR** SAS ≠4 ▶	☐
FEATURE 4: Disorganized Thinking		
Yes/No Questions: Ask the patient to respond: 1. Will a stone float on water? 2. Are there fish in the sea? 3. Does 1 pound weigh more than 2 pounds? 4. Can you use a hammer to pound a nail? Count errors (each time patient answers incorrectly). **Commands:** Ask the patient to follow your instructions: a) *"Hold up this many fingers."* (Hold 2 fingers in front of the patient.) b) *"Now do the same thing with the other hand."* (Do not demonstrate the number of fingers this time.) ☐ If unable to move both arms, for part "b" of command ask patient to "Hold up one more finger." Count errors if patient is unable to complete the entire command.	If combined number of errors >1 ▶	
If Features 1 and 2 are both present and either Features 3 or 4 are present: *CAM-ICU is positive, delirium is present*	**Delirium present** ☐ **Delirium absent** ☐	

140. Interventions to Decrease Noise Levels and Alarm Fatigue among Nursing Staff in the Intensive Care Unit.

Col. Kiran S

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Objectives: Multiple alarms from multiparameter monitors in the intensive care unit (ICU) desensitizes the nursing staff to alarms and raises the likelihood that a true safety event will go unnoticed. An initial survey identified the multiparameter monitors as the devices, which account for most alarms in the ICU and survey of the alarm logs in these machines revealed that the maximum number of alarms were for heart rate, noninvasive blood pressure and for optional features which were not used. It was hypothesized that changing alarm limit settings to a wider but clinically acceptable range, and permanently disabling alarms for parameters which were not being monitored, will reduce noise levels and alarm fatigue in the ICU. **Materials and methods:** All multiparameter monitors of the 24-bedded ICU of a tertiary care hospital were included in the study. Alarm logs of all the multiparameter parameters were charted during the study period. Measurement of decibel levels in ICU was carried out during the study period, using a "Sound Meter App" on Android mobile phone at fixed times daily. **Results:** The maximum noise levels recorded prior to the intervention was 62 dB and the maximum noise levels recorded after the intervention was 45 dB. The difference in mean noise levels postintervention was statistically significant ($p < 0.0001$). There was a significant difference in total number of alarms in the ICU prior to and after intervention ($p < 0.05$). **Discussion:** The intervention of disabling alarms for optional parameters which are not being monitored, is a one-time intervention, which has a huge impact in decreasing noise levels. Changing the default trigger alarm settings of the multiparameter to a standardized wider, yet clinically acceptable limit will be of benefit, especially in ICUs with a higher nurse patient ratio.

141. Adverse Events during Intrahospital Transport of Critically Ill: Impact of a Trained Team.

M Ravi Krishna

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Background: Caring for critically ill patients during intrahospital transport is a high-risk task. There is a paucity of data on the role of specialized transport teams during intrahospital transport as compared to out-of-hospital transfer. **Materials and methods:** A prospective study was conducted in a multidisciplinary teaching hospital from January 2018 to December 2018 including all consecutive patients who were transported from the adult intensive care unit for diagnostic or therapeutic purposes. A transport team, consisted of 6 nurses and 2 medical students, was trained. Patients were randomly divided into two; group I comprised of patients who had an adverse event during transport and were accompanied by a trained team member while group II included patients who had an adverse event and were accompanied by the routine staff. These groups were then compared. **Results:** A total of 188 patients were analyzed, totaling 212 transportations, with 104 adverse events that occurred in 96 of the 212 (39.9%) transportations performed. The incidence of physiological adverse events was 43.2%, team failure in 29.8%, equipment failure in 17.3% and delays in 9.6%. Incidence of adverse events with no damage was 22.5%, with mild damage (33.4%) and with moderate damage (25.9%). There was a statistically significant difference between the two groups in terms of adverse events related to team failure ($p = 0.008$) and equipment failure ($p = 0.009$). **Conclusion:** Trained team rather than a hybrid team that includes different providers from sending units for transfer of critically ill patient can reduce the adverse events related to team failure and equipment failure. Education and training should be a major focus to enhance patient care and the ability for teams to manage acute patient conditions.

142. An Observational Study on Potential Drug: Drug Interactions in a Multidisciplinary Intensive Care Unit.

Varalakshmi Diwakarla

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Introduction: Patients in intensive care units receive multiple medications. There are myriad interactions between these drugs. There are several potential interactions which can cause deleterious effects including occasional life-threatening events. There are not many studies on identification of these interactions and their clinical significance. **Objective:** To identify, potential drug–drug interactions in patients in a multidisciplinary ICU. **Materials and methods:** In this prospective observational study from October 2019 to January 2020, we will review treatment charts of patients admitted to our ICU every day. Using Lexi interact and medscape database; we will identify potential drug–drug interactions. The interactions will be classified into six groups: antimicrobials and neuromuscular blockade, drugs causing cardiac arrhythmias or QT prolongation, drugs with CNS effects-seizures, serotonergic syndrome and others, antiplatelets and anticoagulants, enzyme inducers and inhibitors and miscellaneous. We will tabulate the results and analyze them statistically. **Inclusion criteria:** Patients aged 18–75 years admitted to our ICU admitted for more than 24 hours. **Exclusion criteria:** Chronic kidney disease. Chronic liver disease. Data collected included demographic data, medication prior to ICU admission, current diagnosis, length of stay and ICU outcomes. New AKI, ALD, seizures, cardiac arrhythmias in patients with potential combinations in their treatment plan will be recorded. **Results:** This study is in progress. **Conclusion:** We hope to identify and quantify a significant number of potential drug interactions. This data will increase awareness and help us in modifying prescriptions in the ICU so as to minimize these potentially deleterious interactions and improve patient safety.

143. Aminophylline in the ICU: Old, but Not Obsolete.

Sapthami Gowda S

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Objective: Aminophylline, a 50-year-old bronchodilator, has been effectively replaced by inhaled beta agonists. It remains a fall back option primarily in refractory bronchospasm. However, it's renoprotective, diuretic and anti-inflammatory properties have not been adequately studied in the critically ill adult patient. We therefore conducted a prospective, observational, single arm study in a tertiary care hospital to assess the efficacy of aminophylline as a renoprotective and anti-inflammatory agent in critically ill adult patients. **Materials and methods:** All patients admitted to the adult intensive care unit who were prescribed aminophylline over a 24-hour period were included in the study. The use and dosing of aminophylline infusion was at the discretion of the treating intensivist. Data analyzed consisted of age, diagnoses, medications, markers of renal function and inflammation. Also drug induced side effects were noted. Data was collected at baseline and at 24-hour after aminophylline initiation with primary outcomes being change in renal parameters, increased urine output and anti-inflammatory effect. **Results:** A total of 53 patients were

included in the study. Wilcoxon signed rank test was performed to compare baseline values with postaminophylline infusion values. There was significant improvement in terms of renoprotective effects, with increase in urine output (p = 0.0001) and decrease in serum creatinine levels (p = 0.016). CRP levels were significantly lower (p = 0.006) compared to preinfusion values, but the change in total white cell counts was not significant (p = 0.235). Side effects of aminophylline were detected in 12 out of 53 patients, with tachycardia being the most common side effect. **Conclusion:** Aminophylline demonstrates renoprotective, diuretic and anti-inflammatory effects incritically ill adult patients. Intensivists should definitely consider reinstating aminophylline to their ICU drug formulary.

144. Profile and Outcome of Patients with Acute Toxicity Admitted in Intensive Care Unit.

Shubhal Dixit

DOI: 10.5005/jp-journals-10071-23353.144

Objective: This study is performed to determine the course and outcome of patients admitted in ICU with toxin ingestion in continental hospitals. **Materials and methods:** This is an ongoing cross sectional retrospective as well as prospective observational study being conducted in a 37 bedded Critical Care Department of Continental Hospital in Hyderabad between June 2015 and December 2019. Relevant data was collected from the patient records. Data on patient demographics, psychological analysis, toxins involved and use of toxicology screen were collected for all the patients admitted to the ICU with acute poisoning. In addition, data on presence of organ failure, need for organ support and ICU mortality were also collected. **Statistical analysis:** Abstracted patient data were entered into Microsoft Excel and further analyzed using SPSS 16.0 (SPSS Inc., Chicago, IL, USA) software. Unpaired Student's *t* test was used to compare continuous data between two groups. Categorical data were evaluated using Chi-square or Fisher's exact test. All tests were two-tailed and a p value of less than 0.05 was considered to be statistically significant. **Primary outcome measures:** Mortality. **Secondary outcome measures:** Morbidity, demographic profile, ICU length of stay, no. of ventilator days. **Results:** Among 50 patients studied till now, 22 are males and 28 females. Regarding the agents causing poisoning.

Character of poison	*Patients*	*Mortality (primary outcome)*
Insecticides	10	1
Envenomation	8	0
Sedation and habitual drugs	12	1
Corrosive	4	0
Others (antipsychotics, anti-hypertensives paracetamol, betadine)	16	0

Further details regarding secondary outcome will be discussed during presentation.

Conclusion: The present data give an insight into epidemiology of poisoning and represents a trend in urban India.

145. Hypopitutarism Presenting in Medicine Intensive Care Unit of a Tertiary. Care Unit of Eastern India: A Series of Seven Cases.

Ranjini Roy

DOI: 10.5005/jp-journals-10071-23353.145

Introduction: Hypopituitarism is an underreported condition, which usually presents with various symptoms and signs. The presentation depends upon the age of the patient and hormones deficient. The most common cause is compression of pituitary by sellar and parasellar masses. Other important causes include vascular injury, postpartum hemorrhage (Sheehan syndrome), postradiation and trauma. Presentations include decreased sensorium, recurrent hyponatremia, hypoglycemia, and seizure. Here we are presenting seven cases of hypopituitarism admitted in medicine intensive care unit from July 1st to November 2019. **Case description:** We diagnosed seven patients with hypopituitarism in our medicine intensive care unit. Six the patients were females. Their age ranges from (45 to 60). Three patients have history of postpartum hemorrhage followed by postpartum amenorrhea and lactational failure. Presenting symptoms were nausea in 5 patients, vomiting in 5 patients, diarrhea in three patients, decreased sensorium in 6 patients and generalized swelling of body in four patients. On examination pulse rate ranges from (60 to 80/minute), in five patients hypotension was noted and one was hypertensive, loss of pubic and axillary hair was present in all. Investigations revealed hyponatremia in four patients, hypoglycemia in three patients. Low FT4 in all six patients and low cortisol in four patients. We did MRI brain in six patients, four showed empty sella and one showed partial empty sella, one showed pituitary macroadenoma. We treated accordingly. Five patients improved gradually, one was transferred to neurosurgery department and one patient could not be saved. The patient who expired was having resistant shock, acute kidney injury and sepsis. **Conclusion:** We should investigate patients with recurrent unconsciousness, hyponatremia, and hypoglycemia for pituitary insufficiency. Timely diagnosis can save the life.

146. Mortality Prediction of Modified qSOFA Score (qSOFA Plus) vs APACHE IV and SAPS II Score in a Tertiary Critical Care Unit.

Mohammed S Ahmed

DOI: 10.5005/jp-journals-10071-23353.146

Objective: This study is performed to predict the mortality in patients with sepsis admitted to ICU within 24 hours of admission using modified qSOFA score and to compare it with mortality prediction of APACHE IV and SAPS II scores. **Materials and methods:** Prospective study performed from June 2018 till date in tertiary care ICU in Continental Hospital, Hyderabad. Minimum expected study sample 50 patients. APACHE IV, SAPS II, and qSOFA scores will be calculated at the time of admission of all patients with sepsis into ICU. Three additional parameters will be added to original qSOFA score: age of patient, serum creatinine and worst lactate levels in 24 hours of presentation to ICU. Each parameter will be given a score. This modified score will be named qSOFA PLUS. **Statistical analysis:** Data will be entered into Microsoft Excel and analyzed using SPSS 16.0 (SPSS Inc., Chicago, IL, USA) software. Categorical data will be evaluated using Fisher's exact test. A p value of less than 0.05 will be considered statistically significant. Primary outcome—to determine whether qSOFA PLUS is more sensitive and specific as compared to APACHE IV and SAPS II score in terms of mortality prediction in ICU. **Results:** The actual observed mortality was 47%, whereas mortality predicted with SAPS II score was 45%, qSOFA PLUS had an estimated average mortality of 42% which was closer to the actual mortality. APACHE 1V had mortality prediction of 34%, this is an interim analysis of an ongoing study and full analysis may vary. **Conclusion:** We conclude that qSOFA PLUS is a novel six variable tool to estimate the mortality within 24 hours of admission to ICU in patient's with sepsis. qSOFA PLUS score was observed to be noninferior to SAPS II score and superior to APACHE score in predicting mortality.

147. Comparison of Incidence Hypophosphetemia and Hypokalemia and the Risk Factors in Critically Ill Patients.

Shweta R Chandankhede

DOI: 10.5005/jp-journals-10071-23353.147

Objectives: To define the incidence of hypophosphatemia and compare it with incidence of hypokalemia. To determine various risk factors for development of hypophosphatemia and hypokalemia after ICU admission. **Materials and methods:** It's a prospective observational study conducted over a period of 6 months from April 2019 to September 2019 in patients admitted to a tertiary care ICU. Incidence of hypophosphetemia on admission and development of same after admission was noted and compared with the incidence of hypokalemia. Various risk factors for the development of hypophosphetemia and hypokalemia were defined. **Results:** Chi-square test was performed to compare the incidence of hypophosphetemia and hypokalemia. Total 53% of patients had hypophosphatemia and 40% patients had hypokalemia on admission. Twenty percent and ten percent patients developed severe hypophosphatemia and hypokalemia, respectively after admission. Insulin therapy and sepsis were main risk factors for development of hypophosphatemia and hypokalemia. **Conclusion:** The incidence of hypophosphatemia in our ICU was higher than incidence of hypokalemia. The risk factor for development of both electrolyte deficiency are the same. Potassium is tested in ICU more frequently as compared to phosphorus testing. Thus, incidence of occurrence of hypophosphetemia is missed leading to non correction of phosphorus deficiency.

148. Hypophosphatemia in Critically Ill Patients-occurrence, Incidence, Risk Factors, Outcomes and Management.

N Mahipal Reddy

DOI: 10.5005/jp-journals-10071-23353.148

Objectives: To define the various causes of incidence of hypophosphatemia and risk factors for development of hypophosphatemia after ICU admission. (2) Outcome assessment. **Materials and methods:** It is an observational study conducted over a period of 6 months admitted to a tertiary care hospital. Occurrence at admission, incidence after admission and risk factors were studied. Hypophosphatemia correction given by either oral or parental route based on severity. Outcomes and complication were identified. **Results:** Univariate binary logistic regression analysis was performed to test the association between the explanatory variables and outcome variables. Total 42% of patients had hypophosphatemia on admission, 37% of patients after ICU admission. Fifteen percent of patients had developed severe hypophosphatemia required iv therapy. Diuretics, enteral feeding and sepsis were main risk factors for development of hypophosphatemia. Encephalopathy and hypoxia were most common complications. **Conclusion:** The incidence of hypophosphatemia in our ICU was high and comparable to previous studies, hypophosphatemia behaves like a general marker of illness severity and not as an independent predictor of ICU or in-hospital mortality in critically ill patients.

149. A Study of Clinical Outcome of Young ICU Admissions and Health Related Quality of Life after Discharge.

Pawan Khatri

DOI: 10.5005/jp-journals-10071-23353.149

Objectives: Our objectives were to study the clinical outcome of young patients between the age group 20 years and 40 years admitted in ICU, to evaluate the quality of life of the critically ill ICU survivors over the period of time (1st, 3rd and 6th months) and to assess the influence of various clinical variables on quality of life. **Materials and methods:** This prospective observational study was performed at tertiary care hospital from May 2018 to October 2019. APACHE score was calculated on admission for 80 patients admitted to ICU within 24 hours. Health related quality of life was assessed using the Medical Outcomes Study 36-Item Short Form Health Survey, which was applied by telephone interview at the first, third and sixth months after hospital discharge. ANOVA test was performed for comparing improvement in quality of life and Pearson's correlation coefficient was used to assess magnitude and nature of correlation between different study variables with quality of life components. **Results:** Eighty patients were included in the study, 12 patients died during hospital stay, 6 patients after discharge and 3 patients were lost to follow-up. Higher APACHE II score was significantly associated with increased mortality ($p < 0.001$). Quality of life improved progressively after hospital discharge and was maximum at 6 months. Role emotional was the most affected domain. Physical and mental both components were affected. Physical component was mainly influenced by ICU ($p = 0.0042$) as well as hospital stay ($p = 0.0209$). Quality of life was not affected by APACHE II score, gender, and requirement of mechanical ventilation, vasopressors, sedation and renal replacement therapy. **Conclusion:** APACHE II scoring system is useful in predicting the mortality of critically ill patients. After discharge from the ICU patient quality of life was poor, which showed improvement over time. ICU length of stay had the strongest impact on quality of life.

150. Epidemiology and Risk Factors of Healthcare Associated Infections from Intensive Care Unit of a Tertiary Care Hospital.

Suresh B Bontha

DOI: 10.5005/jp-journals-10071-23353.150

Background: Nosocomial infections result in increased morbidity, length of hospital stays mortality and mortality. We assessed the nosocomial infections rate, infection sites, pathogens and risk factors of healthcare-associated infections in ICU of a tertiary care hospital. **Materials and methods:** In this retrospective study, all the patients admitted in intensive care unit over a period of 12 months during August 2018 to August 2019 were included in the study. Data collected for various healthcare-associated infections such as catheter-associated urinary tract infections (CAUTI), central-line-associated blood stream infections (CLABSI), bed sore infections and ventilator-associated pneumonias (VAP) was done by the intensive care unit in association with hospital infection control team through an infection surveillance proforma. Patients' records including infection surveillance proforma were analyzed using appropriate statistical tools like percentages and odds ratio. Odd's ratio was calculated to ascertain the strength of association of each risk factor. **Results:** Incidence rates of healthcare-associated infections were 3.40/1,000 urinary catheter days, 9.50/1,000 central venous pressure line days and 6.50/1,000 ventilator days. Most common organisms isolated from urine were *E. coli* (27.60%), *Klebsiella pneumonia* (15.67%) *Pseudomonas aeruginosa* (11.94%) and *Candida species* (15.00%). Similarly three topmost organisms isolated from blood were *Klebsiella pneumoniae* (25.98%), *E. coli* (21.25%), *Staphylococcus* (11.02%). *Klebsiella pneumoniae* (37.10%) *Acinetobacter* spp. (37.10%), *Candida species* (10.30%) and were most commonly responsible for tracheal infections. Presence

of diabetes and COPD as well as length of ICU stay ≥7 days was significantly associated with healthcare-associated infections. **Conclusion:** Age ≥60 years, diabetes, COPD and ICU stay for ≥7 days were found to be significantly associated with device-associated infections in our ICU. The results generated can be used to plan and change the potential interventions in managing device-associated infections to improve the quality of critical care services.

151. Effect of an ICU Diary on Post ICU Psychiatric Morbidity in an Indian Set Up: A Randomized, Double Blind Control Trial.

Swagata Tripathy

DOI: 10.5005/jp-journals-10071-23353.151

Introduction: An ICU diary has been recognized to be one of few interventions, which can improve post ICU anxiety, depression and PTSD in Europe and North America. There is no data from the developing World. We aimed to find the feasibility and impact of ICU diaries on post ICU mental health outcomes in our population. **Materials and methods:** All adult patients meeting inclusion criteria had diaries maintained by HCWs and families. Mean (range) age 48 years (18–87), APACHE II 14 (3–27), length of stay 8 days (2–20) and duration of mechanical ventilation 4 days (1–12). They were randomized to receive the diary at 1 month (case) or 3 months (control) after discharge (time 0). Assessment for PTSD, anxiety and depression were done at times 0, 1 and 3 months by a clinical psychologist. CTRI prospective registration number. **Results:** Of 650 screened 161 were randomized and 72 patients completed 3 months follow-up. At assessment both groups had similar demographics, QOL, education, severity of illness and comorbidity scores. The scores for PTSD and anxiety depression (IES-r and HADS) showed significant reduction between 1 month and 3 months in both groups (paired *t* test). The difference in differences of scores at 3 months vs 1 month (unpaired *t* test) however, was significantly more among the cases as compared to the controls in all domains of PTSD, anxiety and depression (p = 0.000, 0.022, 0.000; CI = 3.5–1.3, 0.2–1.3, 0.5–1.8, respectively). **Conclusion:** In this first study of an ICU diary in a LMIC we demonstrate that it is a feasible low expense intervention capable of significant impact on the post ICU mental health outcomes in our population. Funded study—ICMR/2013/Bhu-2.

152. A Randomized, Blinded, Prospective, Placebo Controlled, Investigator Initiated Study to Evaluate Efficacy and Safety of Dexmedetomidine Injection in the Agitated Subjects with Mild Probable Alzheimer's Disease (AD).

Rahul Ghiya

DOI: 10.5005/jp-journals-10071-23353.152

Introduction: Agitation is one of the most common NPS of AD and agitation in 50–70% of AD patients. Dexmedetomidine is selective α-2-adrenergic agonist with sedative properties. Main aim was to evaluate dexmedetomidine dose and safety for the treatment of acute agitation in subjects with AD. **Materials and methods:** This were a randomized, blinded, prospective, placebo controlled, parallel design, single center, investigator initiated study. After obtaining written informed consent from subjects and completion of screening activities, 14 eligible subjects were randomized in the study (10 receiving dexmedetomidine IV infusions and 04 subjects' placebo treatment). The initial dose of dexmedetomidine was 0.1 µg/kg/hour, with no loading dose with the desired endpoint being the attainment of drowsiness (RASS-1) which can be reversed temporarily by verbal stimulation. The dose was increased by upto 0.1 µg/kg/hour if the desired level of drowsiness was not achieved by the end of 30 minutes. Statistical analysis and the associated tables, listings and figures were performed using SAS® (SAS Institute Inc., Cary, USA) version 9.4. Clinical assessment was done before the start of the infusion, at the end of infusion. **Results:** Demographic characteristic of randomized subjects was comparable between two treatment groups. Results demonstrated that 7 out of 10 subjects achieved a RASS score of –1 with dexmedetomidine IV infusion, while only 1 out of 4 subjects achieved this in placebo IV infusion. Subjects became alert and remained calm (i.e., RASS achieved 0) after around 30 minutes of discontinuation of study drug. No adverse event was reported during the study. **Conclusion:** Dexmedetomidine IV infusion is effective in reducing agitation in the subjects with mild probable Alzheimer's disease. It is safe and well tolerated without any clinically adverse effects. However, further studies are required to conclude further on the efficacy and safety of dexmedetomidine considering small sample size.

153. Implementation and Evaluation of a Nurse-led Premedical Emergency Team (Pre-MET) in a Tertiary Care Hospital in India.

Hariharan Mohanasundaram

DOI: 10.5005/jp-journals-10071-23353.153

Objectives: To evaluate the impact of nurse-led premedical emergency team (PRE-MET). **Materials and methods:** This is a retrospective audit of PRE-MET services at a tertiary care hospital in Chennai. The PRE-MET was mandated to screen all patients directly admitted from ER or OR toward (high-risk surgeries) and patients transferred to floor after an ICU stay. Additionally, all in-patient wards were empowered to activate PRE-MET for any concerning symptom/sign. **Inclusion criteria:** All patients screened by PRE-MET over a 7 months period (March 2018 to September 2018). **Data sources:** Data was extracted from medical records on demographics, reasons for activation of PRE-MET, interventions performed and patient-centerd outcomes. **Primary outcome:** Proportion of patients preemptively transferred to the intensive care unit (ICU) by the PRE-MET and their outcomes. **Secondary outcomes:** Proportion of patients that were continued to be managed on the ward by PRE-MET and their outcomes; comparison of the frequency of SAEs/code-blue activations pre and postimplementation of the PRE-MET. **Results:** During this period, 4,635 patients were screened by PRE-MET and 648 (13.98%) patients met PRE-MET criteria (MEWS > 3); of these, 266 (41.05%) were managed in wards and 382 (58.95%) were transferred to ICU. Of those managed in ward, 264 (99.25%) were discharged and 2 (0.75%) were eventually transferred to ICU. Of those moved to ICU, 274 (71.73%) were discharged, 39 (10.21%) went AMA and 18.06% (69) expired. There was a 28.8% reduction in overall MET activations (SAEs/code-blue) for this period as compared to the same months of the previous year. There was 45.9% reduction in SAE compared to previous year but code blue calls remained same. The most common intervention done by PRE-MET team on the wards was IV fluid administration. **Conclusion:** Routine screening of high-risk patients by a nurse-led PRE-MET is feasible, effective and enabled better resource utilization. PRE-MET implementation resulted in a 45.9% reduction in SAEs.

154. Hemophagocytic Lymphohistiocytosis (HLH) in a Dengue IGM Positive Patient.

Pinky Saha

DOI: 10.5005/jp-journals-10071-23353.154

Background: Hemophagocytic lymphohistiocytosis (HLH) is a rare but potentially fatal disease of normal but overactive histiocytes

and lymphocytes that commonly appears in infancy, although it has been seen in all age groups. Fever, hepatosplenomegaly, pancytopenia, lymphadenopathy, and rash often comprise the initial presentation. Cutaneous involvement occurs in as many as 65% of patients. **Case presentation:** Twenty four-year-old female admitted to HDU with complain of fever, cough, loose motion and generalized weakness for 1 week. After initial evaluation conservative management started with adequate hydration, PPI, antiemetics, antibiotics HFNO and other supportive medications. She had pancytopenia, significant low TLC, platelet count and hemoglobin, elevated CRP, dengue IGM was positive and liver enzymes were deranged. Lipases were elevated. Hematological and gastrology opinion were taken periodically regarding pancytopenia and pain abdomen. Filgrastim was started and patient also received 2 units PRBCs 6 units RDPs and FFP. Bone marrow study was done which revealed hemophagocytic lymphohistiocytosis. Peripheral blood smear showed microcytic hypochromic with moderate anisocytosis, leucopenia and moderately reduced platelets. Ferritin levels were high. HLA markers were not significantly elevated. She gradually improved cytopenia was corrected, dyselectrolytemia managed accordingly. Infective markers reduced, general well-being was improved and patient was discharged in stable condition.

155. A Observational Study to Show the Prevalence of Occult Blood in Stool in All ICU Admitted Sepsis Patient on Mechanical Ventilation.

Harsha Gupta

DOI: 10.5005/jp-journals-10071-23353.155

Materials and methods: It is an observational study. We will select all the patients admitted in ICU from June 2019 to October 2019 diagnose as sepsis (according sepsis-3 definition) on mechanical ventilation for more than 48 hours, and who will be fit in our inclusion and exclusion criteria, will be including in this study. We will get an informed consent from patient attendant. Stool for occult blood will send to all selected patient and result will be analyzed to show the prevalence. **Duration:** 1st June 2019 to 31st October 2019. **Inclusion criteria:** (1) Age 18–70 years. (2) Diagnosed case of sepsis (according sepsis-3 definition). (3) On mechanical ventilation for more than 48 hours. **Exclusion criteria:** (1) Age <18 and >70 years. (2) History of gastrointestinal bleeding or ulceration or recent gastrointestinal surgery. (3) Carcinoma colon and rectum. (4) Patient presented with active bleeding. **Results:** Awaited. **Conclusion:** Awaited.

156. Demographics and Outcome of CPR from an Urban Tertiary Care Center: A Retrospective Analysis of AOC Registry.

Rachhadia Jasmin

DOI: 10.5005/jp-journals-10071-23353.156

Introduction: A retrospective study of CPCR following cardiac arrest was carried out over 16 months with the aim of identifying parameters related to outcome of cardiac arrest with help of AOC registry web portal. **Aim and objective:** The primary objective is to analyze demographic details of CPCR in our hospital. To identify resuscitation practices associated with higher rate of in hospital cardiac arrest resulting into death. **Materials and methods:** After the approval of Hospital Ethics Committee, an analysis was conducted of all patients who had received CPR in hospital over 16 months (1st April 2018 to 31st July 2019). Data uploaded on and analyzed by the AOC registry web portal. Code blue data sheet feel and compiled on AOC registry web portal. Amongst which 94 patients who had in hospital cardiac arrest and 2 patients are for out of hospital cardiac arrest. Mostly IHCA patients studied. All adult patients of age group ≥12 years, who had cardiac arrest and underwent CPR in a tertiary care hospital during given period were included in the study. Patients who were brought and declared dead on arrival were excluded from the study. **Results:** Which showed maximum number of CPR delivered in month of December 2018 (11) and lowest number in August 2018 (2). On an average 6 (96/16) patients received CPR per month in last 16 months. As per this analysis, age group between 61 and 70 more frequently (24 patients—19M + 5F) received CPCR during this period at our Hospital. 3 (2M + 1F) patients between age 21 and 30 received CPCR at our hospital. As clearly evident here, male received around 77% of the total CPR in this period at our hospital (74 out of 96). Amongst the causes of cardiac arrest, acidosis and hypoxia are found to have been commonest cause in our study, as we received many sepsis and viral pneumonia patients during last year. As we do not have cathlab we received number of ACS pt and so it reflects on our data. In our study, 75 patients out of 96 were found to have pulseless electrical activity as first rhythm, only 2 patient had documented VT/VF as first rhythm and rest of the patient had asystole as first rhythm. Out of 96 CPCR deliver, 5 patients survived as final outcome. **Conclusion:** The reason of poor outcome of CPCR in hospital cardiac arrest patients, was mainly due to first documented rhythm being PEA, we have mainly IHCA data of ICU pt who are terminally ill and averagely more >60 years in age.

157. Health Related Quality of Life among ICU Survivors Over 1 Year after Discharge.

Kriti Shakya

DOI: 10.5005/jp-journals-10071-23353.157

Objectives: We aimed to explore the relative importance of acute physiology and chronic health evaluation II score, days in invasive mechanical ventilation and length of ICU stay as determinants of health related quality of life during the year following ICU discharge. **Materials and methods:** This is a cross-sectional study of 30 ICU survivors admitted to two mixed multidisciplinary and neurological ICUs at Nepal Mediciti Hospital, during January 2018 to October 2018. HRQOL was assessed by short form-36 scoring (SF-36) which was done telephonically. Demographics, acute physiology and chronic health evaluation II score, length of ICU stay and length of invasive mechanical ventilation days were recorded. Bivariate associations with SF-36 scores were tested by using Pearson correlation. Multiple linear regression was used to identify independent associations with health-related quality of life. **Results:** Among 30 ICU survivors, 86.7% had the acute physiology and chronic health evaluation II score >10 points, 16.7% stayed in ICU for ≥28 days and 46.7% were mechanically ventilated for >7 days. In bivariate and linear analysis, longer stay in ICU and prolong mechanical ventilation was statistically negatively significant with health-related quality of life ($p = 0.04$, $r = -0.370$ and $p = 0.03$, $r = -0.395$, respectively). In contrast, acute physiology and chronic health evaluation II score was not significantly associated with health related quality of life ($p = 0.83$ and $r = -0.03$). **Conclusion:** Early mobilization and rehabilitation along with family support would be benefited to ICU survivors to reduce the impact of prolong mechanical ventilation and ICU stay for improving health related quality of life.

158. An Unusual Case of Rapidly Progressive Necrotizing Myopathy.

Laviena Mallela

DOI: 10.5005/jp-journals-10071-23353.158

Immune mediated necrotizing myopathies are a subgroup of idiopathic inflammatory myopathies. NAM (necrotizing autoimmune myopathy) is usually associated with connective tissue disorders, statins, malignancies or may be idiopathic. These disorders have an acute/subacute course with proximal muscle weakness, markedly elevated CPK levels and biopsy showing muscle necrosis with minimal inflammation. We present a case of rapidly progressive necrotizing myopathy, most probably related to statin use. A 70-year-old male presented with complaints of fever, cough, anorexia, weight loss, anasarca for 2 months and progressively increasing proximal muscle weakness (UL and LL) for 10 days. He was a diabetic, hypertensive, hypothyroid, had coronary artery disease—S/P CABG status on antiplatelet, statins, levothyroxine and insulin. He also had chronic left ureteric calculus with hydroureteronephrosis. On investigation, he was found to have a left upper lobe consolidation with cavitation and sputum detected positive for MTB on CBNAAT with sensitivity to rifampicin and culture was negative for other bacteria. Other investigations revealed left hydroureteronephrosis, anemia, deranged LFTs (SGOT > SGPT) and hyponatremia. He was started on ATT. On evaluation for muscle weakness (MRC power 2–3/5) CPK was found elevated (2,880 U/L). Over the next 3–5 days weakness worsened (1–2/5) with development of dysphagia and respiratory distress requiring ventilation. Serial CPK levels showed a rapid increase to 60,000 U/L. Autoimmune and myositis profile were negative. Muscle biopsy revealed muscle necrosis with minimal inflammation. A diagnosis of NAM was made. He was started on steroids followed by IVIG along with antibiotics and ATT. However, his condition deteriorated with development of AKI for which he received RRT (hemodiafiltration). Despite this, he unfortunately succumbed to his illness on third day of starting specific treatment. Statin induced NAM has not been reported earlier to have such a fulminant course. In this case, a diagnosis of exclusion of statin induced NAM was made. This rare entity must be thought of when patients on statins present with weakness.

159. Postoperative Outcome Assessment in Patients Undergoing Cerebral Aneurysm Clipping.

LS Nagaswetha

DOI: 10.5005/jp-journals-10071-23353.159

Introduction: CVA is the third leading cause of morbidity and mortality. As many as 15% of all CVAs are secondary to ruptured aneurysms and CVAs related to aneurysms are associated with 30-day mortality rates of between 45% and 80%. Half of all survivors of ruptured aneurysms sustain irreversible brain damage, and although most stop bleeding spontaneously, 50% rebleed within 6 months. Rebleeding of an aneurysm is associated with a 50–85% risk of death, and exclusion of the aneurysm from the circulatory system by microsurgical clipping or endovascular coiling has been recommended to reduce this risk. **Background and purpose:** The purpose of this study is to assess the 30 days postoperative outcome in patients undergoing surgical clipping for ruptured and unruptured aneurysms. **Materials and methods:** A prospective study is performed. All adult patients who are undergoing surgical clipping for cerebral aneurysms will be include in the study. Patients GCS is noted preoperatively and date of ictus are noted. Intraoperatively hemodynamics, lactate levels, temporary clipping time and gap between temporary clips application are noted. Hemodynamics and lactate levels are monitored till the discharge of patient. Outcome is assessed through modified Rankin scale. **Results:** We found that there is no significant increase in lactate levels in patients with poor outcome. Patients who have undergone early surgery, with GCS—15 preoperatively has better outcome in both ruptured and unruptured aneurysm clipping surgeries. **Conclusion:** We conclude that lactate is not reliable marker of cerebral hypoperfusion to assess the postoperative outcome in cerebral aneurysm clipping cases.

160. Re-searching Critical Care Research in India.

Lakshmi Ranganathan

DOI: 10.5005/jp-journals-10071-23353.160

Objectives: Indian Society of Critical Care Medicine (ISCCM) has played a key role in education and training. However, data is sparse on the productivity and quality of research from our community. ISCCM compiled the published research (2013–2018) from India as a compendium in 2019. The current study is a secondary analysis of the compendium to evaluate the type and quality of published research. **Materials and methods:** Retrospective review of the compendium was undertaken. Standardized data collection tool was used to extract data; publication status, journal of publication, study design, duration and location, sample size, and funding sources were noted. Descriptive statistics were used for reporting results. **Results:** Six hundred and ninety nine abstracts were identified and categorized based on primary organ system of research. The top 5 categories were respiratory system (14.3%), economics, quality and logistics (12.6%). Cardiovascular system and hemodynamics (10.7%), neurology (9.7%) and nephrology (7.7%). Top 5 contributing states were Karnataka (12%), Tamil Nadu (11%), New Delhi (9.4%), Maharashtra (8.9%) and Uttar Pradesh (6.6%). Most research (41.5%) involved single center/state, 7% were multistate/multicenter and 1.9% multinational (information unavailable—49.6%). Study duration ranged from 1 month to 9 years. Details of funding were not available for 99% studies, while 1% reported receiving no funding. Of 699 abstracts, 335 were published and 330 were unpublished (34—unavailable). Of the published papers, 63.6% were prospective studies and 22.4% retrospective. Sample size ranged from 14 to 6,141 (median—101.5) and 8 to 11,335 (median—124), respectively. Prospective studies were observational (55.9%), RCTs (9.4%) and surveys (3.8%) (31%—design unclear). Among the publications, 5.7% were in journals with high impact factor (IF) > 10%, 7.8% in journals with IF 5–10%, 18.8% in IF < 5% and 67.8% in unlisted IF. **Conclusion:** Majority of the abstracts remain unpublished. Most publications are single center, prospective, observational and predominantly in journals with low or unlisted impact factor.

161. The Effect of Dexmedetomidine as an Adjuvant to Ropivacaine for Wound Infiltration in Providing Postoperative Analgesia for Open Abdominal Surgeries.

Chukkaluru Sumadhu

DOI: 10.5005/jp-journals-10071-23353.161

Introduction: Intensive pain caused by abdominal laparotomy may influence postoperative recovery.[3,4] Wound infiltration with local anesthetics is one of the multimodal approach to control postoperative pain after open abdominal surgeries.

Aim and objectives: The aim of the study is to evaluate the efficacy of wound infiltration with two different doses of dexmedetomidine added to ropivacaine on postoperative analgesia in patients undergoing open abdominal surgeries. Primary outcomes were magnitude of pain assessed by numerical rating scale (NRS) at 0, 2, 4, 6, 12, 24 hours after surgery, time to first request of analgesia, analgesic requirement in the postoperative period over 24 hours. **Materials and methods:** We have conducted this prospective, randomized, double blind study in our institution to compare the efficacy of two different doses of dexmedetomidine when added to ropivacaine for wound infiltration in providing postoperative analgesia in open abdominal surgeries. Ninety-nine patients posted for elective open abdominal surgeries belonging to American Society of Anesthesiologists Physical status I, II were randomly assigned into three groups. Group R received 30 mL of 0.75% ropivacaine, group RD1 received 30 mL of 0.75% ropivacaine with dexmedetomidine 0.5 µg/kg, group RD2 received 30 mL of 0.75% ropivacaine with dexmedetomidine 1 µg/kg. Study drugs were made into equal volume of 60 mL each by adding 0.9% normal saline and the study drug was infiltrated into the edges of the wound at the end of surgery. **Results:** The NRS scores for pain intensity did not show any statistical significance at any of the predefined time points. Time to first request of analgesia was longer in group RD2 (136.2 ± 114.4 minutes) when compared to other groups (R, 66.06 ± 58.5 minutes; RD1, 103.2 ± 48.8 minutes; $p < 0.05$). Total amount of rescue fentanyl consumed in group RD2 (280.4 ± 140.7 µg) was less when compared to RD1 (306.6 ± 133.8 µg) R (331.8 ± 99.2 µg); $p = 0.262$. **Conclusion:** We conclude that wound infiltration with dexmedetomidine at both the doses (0.5 µg/kg and 1 µg/kg) provides extended postoperative pain relief when administered along with 30 mL of ropivacaine (0.75%). The pain relief provided by dexmedetomidine (1 µg/kg) appears to be superior to both dexmedetomidine (0.5 µg/kg) and plain ropivacaine.

162. Body Wearable Sensors: A Literature Review from Indian Perspective.

Gunjan Chaudhry

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Objectives and introduction: Innovations in mobile and electronic healthcare are revolutionizing the involvement of both doctors and patients in the modern healthcare system by extending the capabilities of physiological monitoring devices. **Materials and methods:** We reviewed the literature available for latest electronic devices meant for monitoring human parameters using body wearable sensors, trackers, telemonitoring, wireless/GPS technology and real time home tracking devices and their application for clinicians in intensive care settings from Indian perspective. Their integration with smartphone widening the application of telemedicine and cost-effectiveness in comparison to existing options. **Results:** These body wearable sensors are reliable and very effective for preventative methods in many different specialties of medicine such as, cardiopulmonary, vascular, endocrine, neurological function and rehabilitation medicine. These sensors have also been shown to be accurate and useful for perioperative monitoring and rehabilitation medicine as well as preoperative risk assessment. **Conclusion:** These body wearable sensors although quietly penetrating in homecare, continues to be underutilized in hospital settings even though they are cost-effective to many of their heavy. They not only provide real-time remote monitoring but also provide time to clinician in case of impending catastrophe. In developed countries like India, they have also potential in ambulance and patient transport for monitoring and two way interaction in need.

163. Euglycemic Diabetic Ketoacidosis: A Dreaded Complication in Postoperative Patients in ICU.

Wasim Feroz

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Diabetic ketoacidosis is a life-threatening metabolic disorder and a known complication of diabetes mellitus, caused by insulin deficiency or insulin resistance, which allows the catabolism of free fatty acids into ketone bodies, with high blood sugar levels. A rare variant of it is, euglycemic diabetic ketoacidosis with normal blood sugar levels and production of ketone bodies with acidosis. A case of 50-year-old female patient who was a known case of DM, with normal blood sugar levels is reported who developed this complication postoperatively in the ICU. Within a few seconds of shifting from OT to ICU, she developed severe hemodynamic derangement and shock with hypoxemia. Since the patient was anesthetized, it was difficult to assess the symptoms and diagnose this condition with normal sugar levels. But early diagnosis with correlation of few signs and investigations and aggressive and early resuscitative measures led to a favorable outcome. Risk factors, etiopathogenesis and management of this condition are discussed in brief.

164. A Comparative Study of Desflurane and Fentanyl with Propofol and Fentanyl on Intraoperative Anesthetic Requirement, Postoperative Analgesia and Recovery Profile.

R Bhanuprakash

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Objectives: The primary outcome studied was the comparison between the intra operative hemodynamics and recovery profiles among the desflurane and propofol groups. The secondary outcome was the intraoperative anesthetic consumption, time to first analgesic request postoperatively and the difference in costs incurred by using desflurane and propofol in their respective groups. **Materials and methods:** Induction was done with midazolam 0.5–1.5 mg, fentanyl 2 µg/kg and propofol at a rate of 30 mg/kg/hour infusion until BIS value drops below 60. Intubation was facilitated by giving vecuronium 0.1 mg/kg and ventilated with 50% O_2 in N_2O. Desflurane group received 2–6% of desflurane and propofol group received propofol infusion 8–12 mg/kg/hour. Desflurane dial concentration or propofol infusion rate was titrated so as to maintain BIS in the range of 45–55. Top up doses of inj. vecuronium 0.02 mg/kg i.v. was given every half hourly. All anesthetic agents were discontinued 10 minutes before the anticipated end of surgery. Intraoperative anesthetic requirement, postoperative analgesia and recovery profile were noted. **Results:** Heart rate showed a significant decrease in heart rate in propofol group at 120 minutes (71.83 ± 09.13 vs 80.42 ± 1.88, $p = 0.018$) and 180 minutes (68.84 ± 07.50, $p = 0.012$) than desflurane. The patients in desflurane group extubated significantly in shorter time than propofol group (9.7 ± 1.6 minutes vs 14.13 ± 2.41 minutes, $p = 0.0001$). There was a significant delay in postoperative first analgesic request in propofol group (19.31 ± 3.59 minutes vs 14.03 ± 2.51 minutes, $p = 0.0001$) than in desflurane group.

Cost incurred by desflurane group is three times higher than propofol group. **Conclusion:** We concluded that desflurane offers an transient advantage compared with propofol with respect to early recovery after prolonged anesthesia. May be the usefulness of desflurane should be sought elsewhere, where rapid control of hemodynamics is needed or for outpatient procedures in high output centers when a transient improvement of recovery may influence PACU discharge.

165. Sodium Bicarbonate Administration Practice in Critically Ill Patients Admitted with Metabolic Acidemia: A Prospective Observational Single Centre Study.

Saurabh Chandrakar

DOI: 10.5005/jp-journals-10071-23353.165

Objective: Sodium bicarbonate therapy effectiveness in critically ill patients and to assess predictors of adverse outcome. **Materials and methods:** Prospective observational study of patients admitted to SICU during six months period with metabolic acidemia (pH ≤ 7.34 or HCO_3 < 22 mmol/L, $PaCO_2$ < 45 mm Hg) needing administration of sodium bicarbonate for correction within 24 hours of admission. Data were collected from drug order sheet and electronic workstation. Primary outcome was death or terminal discharge from ICU. Secondary outcomes were need of renal replacement therapy and adverse outcomes. Sample size—data were compared by Student's *t* test or Mann–Whitney *U* test regarding normality of the population distribution. Multivariate analyses were performed using a logistic regression model to estimate odds ratio of death after discretization of continuous variables. All tests were two-sided at $\alpha = 0.05$ level of significance, analyzed by SPSS software V21.0. Results: Among 669 patients admitted to the ICU between June and November 2019, 117 (17.4%) patients were admitted with metabolic/mixed acidemia (excluding pregnancy, hematological malignancy, chronic kidney disease and rhabdomyolysis). Ninety six patients required mechanical ventilation and 88% were on vasoactive agents support. Mean age was 51.8 (±16.6) years. Dose of bicarbonate during whole stay was 8.47 ± 5.17 mOsm/kg. Major indications of bicarbonate therapy in acidemia were shock (83.7%) and acute kidney injury (43.5%). Nine patients required renal replacement therapy in first 24 hours and around 15.3% during whole ICU stay. Mean ICU free stay was 24.12 ± 2.8 days with mortality and terminal discharge of 42 (35.9%) patients. Hypernatremia (33%), hypokalemia (8%) and metabolic alkalosis (24.7%) were common adverse effects with no life-threatening complications. Variables like pH, lactate, APACHE and SOFA score at admission, were associated with increased mortality. **Conclusion:** In our study, we noticed that sodium bicarbonate therapy was not associated with improvement in mortality or terminal discharge. However, in a subset of patients early administration of bicarbonate delayed onset of renal replacement therapy. Admission pH, lactate, APACHE and SOFA scores were independent factor affecting mortality. Larger studies are needed to validate.

166. A Comparative Study of the Effects of Propofol and Etomidate on Hemodynamic Stability, Seizure Duration and Recovery Profile during ECT.

Edur Mahesh

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Aim and objectives: The aim of the cross over study was to compare the effects of intravenous (IV) propofol and etomidate on heart rate, systolic blood pressure, diastolic blood pressure, mean arterial pressure, seizure duration, recovery profile and complications postoperatively during modified electroconvulsive therapy (ECT). **Materials and methods:** Fifty-four patients of American Society of Anesthesiologists (ASA) physical status grade I and grade II of either sex aged between 18 years and 60 years were allocated into two groups depending on the drug given; group P (1.5 mg/kg) and group E (0.2 mg/kg). All the patients were monitored for changes in heart rate, systolic blood pressure, diastolic blood pressure, and oxygen saturation at basal, after induction and 1, 2, 3, 5, 10 minutes following ECT. Seizure duration, time taken to open eyes, time for orientation, time to sit up and complications post ECT were noted. **Results:** HR, SBP, DBP, and MAP were well attenuated and maintained in group P when compared to group E after induction and at 1, 2, 3, 4, 5 minutes postshock delivery ($p < 0.05$). Seizure duration was longer in group E (48.93 ± 9.5 seconds) when compared to group P (30.74 ± 6.780 seconds) ($p = 0.0001$). Mean time taken to open eyes to verbal command in group P and group E was 4.94 ± 1.140 minutes and 6.00 ± 1.387 minutes, respectively ($p = 0.0002$). Mean time taken for orientation in group P and group E was 7.89 ± 1.313 minutes and 9.41 ± 1.838 minutes, respectively ($p = 0.0001$). Mean time taken to sit up in group P was 10.85 ± 1.472 minutes and group E was 13.20 ± 1.956 minutes with $p = 0.0001$. Complications were less in group P when compared to group E but not significant ($p > 0.05$). **Conclusion:** We conclude that propofol is a better choice compared to etomidate for modified electroconvulsive therapy due to less hemodynamic variability, better, faster and smooth recovery and with less complications.

167. What Next When Treatment Ends? "Code Krishna": A Collaborative Wisdom of East and West.

Abhishek M Prajapati

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Objective: To introduce a protocol based intervention "Code Krishna" aimed at offering comprehensive care of the deceased and their family members in moments of death; and analyze experiences about the practice among healthcare professionals who deliver the same. **Materials and methods:** A protocol based practice termed "Code Krishna" was institutionalized. It comprises of expressing condolence, praying, offering floral tribute and paying homage to the departed soul at the bedside by treating team in presence of family members. We evaluated HCP's experiences about intervention through reflective writing and semi quantitative questionnaire. **Results:** Practice has been delivered to more than 700 deaths during last three years. We evaluated responses from 52 healthcare professionals (37 staff nurses, 15 doctors) working in ICUs and 10 family members. Response can be categorized as: (1) sense of fulfillment of one's professional obligations, (2) relief from professional stress and burnout, (3) offering healing touch when treatment. Ends while respecting family's spiritual-cultural beliefs, (4) experience "*moments of silence*" in ICUs and deep inner peace. Ninety seven percent respondents felt that this practice is important means to enhance spirituality and empathy in action packed ICUs. Ninety eight percent felt that the practice gives support and peace to the family in their moments of pain. Twenty percent felt our care would be incomplete without it. Family members felt that care of the dead has always to be like this. **Conclusion:** "Code Krishna" is an example of collaborative wisdom of scientific and spiritual worldviews. It enables healthcare professionals to fulfill

their well-recognized responsibilities. It facilitates healthcare professionals to express care for the departed soul, while at the same time, eases the grief of the bereaved family. It helps the members of the treating team to overcome their own suppressed grief, improve the quality of the care provided by them, and show greater compassion.

168. Success Rate of Volume based Feeding in Intensive Care Unit, an Observational Study.

Krishna Priya R

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Background: Administration of enteral nutrition maintains integrity as well as function of gastrointestinal mucosa and feeds initiated within 24 hours have better outcome. Critically ill patients have a hypermetabolic state and fixed rate feeding and interruptions in feed for interventions lead to undernutrition and affect outcome. American Society of Enteral and Parenteral nutrition recommend volume based feeding protocol to optimize nutrition delivery based on FEED ME (feed early enteral diet for maximal effect) protocol. Volume based feeding protocol with adjusted infusion rate deliver target volume over a given time. In this study we tried to find out the success rate of volume based feeding. **Materials and methods:** This was a prospective observational study. Primary objective was to determine proportion of feed days in which more than 80% feed volume was achieved and secondary objective to determine proportion of feed days in which more than 80% calorie and protein was achieved. A volume based feeding protocol was implemented taking into account daily calorie requirement and feeding interruptions. Patients were followed up till transferred or feeding stopped and daily feed volume, calorie and protein achieved audited and statistical analysis by Student *t* test/ANOVA test. **Results:** More than 80% prescribed volume, calorie and protein were delivered in 95%, 85.7% and 56.12% of enteral nutrition days, respectively. In 98.7% of enteral nutrition days volume-based feed is tolerated without any adverse effects. **Conclusion:** Volume based feed is safe and with prompt training of staff in delivering volume feeds, adequate nutrition can be delivered for patients in case of any interruption of feed.

169. Study of Cardiac and Pulmonary Manifestations among Dengue Patients in Intensive Care Unit at Tertiary Care Hospital in Rohilkhand Region.

Kumar Mrityunjay

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Objectives: To study cardiac and pulmonary manifestations among dengue patients in intensive care unit. **Background:** Cardiac and pulmonary manifestations such as myocarditis, arrhythmias, acute pulmonary edema, hypotension, pleural effusion, pneumonia, pulmonary hemorrhage and hemoptysis have been reported in dengue infection. Dengue hemorrhagic fever (DHF) may cause acute respiratory distress syndrome and myocarditis. Dengue shock syndrome (DSS) is reported to be the leading cause of ARDS in dengue endemic area. **Materials and methods:** This study was conducted in 100 patients of dengue confirmed by dengue ELISA assay. Cardiac and pulmonary manifestations were recorded and all clinical examination findings were noted. Baseline investigations including CBC, liver profile, renal profile, ECG, 2D echo ABG, dengue virus IgM and IgG, plain X-ray chest P.A. and USG thorax were done. **Results:** Young patients and patients with comorbidities are at risk for severe form of dengue fever and have a high mortality rate. As regards comorbidities, chronic chest disease and cardiac disease are mostly vulnerable to DHF and DSS. The most presenting cardiac manifestation were muocarditis, arrhythmias and among pulmonary manifestations were ARDS followed by pneumonitis and pleuralef fusion. **Conclusion:** Incidence of cardiac and pulmonary manifestations among cases of DHF and DSS is frequent and can be used as a prognostic indicator in dengue patients in intensive care unit.

170. Comparison of Arterial Blood Gas Analyzer with Central Laboratory Analyzer for Measurement of Electrolytes, Hemoglobin, Glucose and Bicarbonate in Patients Admitted to the Intensive Care Unit.

Prashanth Chintalapudi

DOI: 10.5005/jp-journals-10071-23353.170

Aim: Primary: comparing arterial blood gas analyzer and central laboratory analyzer whether there is any difference in the measurement of electrolytes, hemoglobin, glucose and bicarbonate. Secondary: to investigate the cause of any discordance between the techniques (if any). **Study design:** A prospective observational study. **Materials and methods:** The study consisted of 1,000 arterial blood samples drawn from patients who admitted in intensive care unit requiring ABG. From each patient, two samples of arterial blood have been collected at the same time. The first sample of 1.6 mL was collected in commercially available plastic ABG syringes (2 mL) and the parameters were estimated on-site immediately after sample collection by using direct ion-selective electrodes in ABG machine. Second sample was collected in a BD vacutainer for serum (4.0 mL or 6.0 mL) in a nonadditive silicone coated tube and sent to the central laboratory for estimation of desired parameters using indirect ion-selective electrodes by prediluting the specimen before analysis. **Inclusion criteria:** Age group 18–70 years, who are critically ill admitted in medical intensive care unit (MICU). Samples with normal levels of total protein, albumin, globulin, total cholesterol and triglycerides were considered. **Exclusion criteria:** Pediatric patients and age >70 years. Over diluted heparinized syringes used for ABG sampling. Blood samples contaminated by ambient air and the use of expired or suboptimally stored cartridges were excluded. **Results:** Results will be declared on the day of presentation.

171. An Observational Study to Determine the Organism/ Organisms that Colonize the Central Lines and to Study the Sensitivity of those Organisms.

Nikita Shah

DOI: 10.5005/jp-journals-10071-23353.171

Objectives: To study the sensitivity pattern with respect to the variables which include antibiotic use, APACHE score. **Materials and methods:** Study included a total of 200 patients. Mean APACHE score was 13.57. Out of 200 patients, 197 received antibiotics. Duration was 7 days in 96 patient and 101 received antibiotics for >7 days. Results are worth to see. **Results:** In the present study, out of 200 processed catheter, 58 showed significant growth. Out of which 9 (15.51% cases showed fungal growth). In present study colonized cases with staphylococcus epidermis (cons) showed maximum susceptibility to linezolid (89.5%, followed by vancomycin and teicoplanin). Whereas 78.9% of colonized cases with staphylococcus were resistant to antibiotics like penicillin, 52.6% for levofloxacin and 21.5% for cotrimoxazole and tetracycline. This study showed that,

87.5% of colonized cases with *Enterococcus* sp. Were sensitive for antibiotics like teicoplanin which is most common antibiotic used in our hospital. However it should be noted that 80% of colonized cases with Gram negative organisms were sensitive for antibiotics like ceftriaxone/sulbactum/EDTA, 64% for colistin and minocycline, 56% for amikacin. Fungal colonization which predominantly grown candida albicans shown that, 87.5% of colonized cases with fungal were sensitive to antifungals like caspofungin and micafungin, 37.5% for flucytosine whereas 75.0% of colonized cases with fungal were resistant for antibiotics like voriconazole, 62.5% for amphotericin-b and fluconazole. **Conclusion:** The colonized organisms were sensitive to a large variety of antibiotics. Actual statistics are given in results section. It concludes that the colonization of organism depends on the duration of central line and not exactly on the duration of antibiotics. Though this will need further studies.

172. First Indian Study of the use of Indirect Calorimetry vs Usual Care in a Tertiary Care Institute in India.

Sanjith Saseedharan

DOI: 10.5005/jp-journals-10071-23353.172

There are no studies with respect to the use indirect calorimetry from India. There are also very few studies done in literature about indirect calorimetry. However this has remained the gold standard in the management of critical care nutrition as per all major guidelines. The authors of this study has ventured to study some clinical aspects of indirect calorimetry. **Aim:** To compare the observations in the use of indirect calorimetry in comparison to a retrospective cohort of patients and study the comparisons of energy requirements of patients derived from indirect calorimetry vs predictive equations. **Materials and methods:** One hundred and fifty mechanical ventilated patients on whom indirect calorimetry was used for energy estimation were studied by analysis of data from case papers during a span of 16 months. One hundred and fifty matched mechanical ventilation patients in whom indirect calorimetry was not used, i.e., controls, were also studied by history sheets. No protocols in ICU management were changed. In controls the energy and protein management was done by use of predicted equation. The weight loss, length of stay, length on mechanical ventilation and mortality was studied. **Results:** The results showed a nonsignificant reduction in mortality. There was a reduction in the length on mechanical ventilation (1.2 days) a length of stay in the hospital (2 days). However, there was no reduction in the length of stay in the hospital. There was very wide variability of energy requirements between those derived from predictive equations vs measured by indirect calorimetry. **Conclusion:** Use of indirect calorimetry is associated with favorable outcomes which includes length of stay in hospital length of mechanical ventilation and weight loss.

173. Energy Expenditure Changes in a Single Patient with Intravascular Cooling: A First Defining Case Report!

Vaijayanti Nar

DOI: 10.5005/jp-journals-10071-23353.173

Indirect calorimetry is a very useful tool to evaluate energy expenditure. Reduction of resting energy expenditure might be one of the possible mechanisms underlying the protective effects of hypothermia. There are almost no studies that show the effect of intravascular cooling and energy expenditure. The author tries to show the effect of intravascular cooling on energy expenditure using indirect calorimetry which is the gold standard for measurement of energy expenditure. **Objective:** To evaluate energy expenditure changes in an intravascularly cooled patient using indirect calorimetry. **Materials and methods:** A single patient who had a cardiac arrest was cooled to 35°C as a part of targeted temperature management after stabilization using continuous renal replacement therapy (CRRT). Indirect calorimetry readings were taken at two hourly intervals during the period of hypothermia and the period of rewarming. The patient did not receive any caloric intake during this period. Sedatives and paralytics were given during the hypothermia period as per protocol of our ICU to prevent shivering. **Results:** We noted that the energy expenditure for this patient that was intravascularly cooled to 35°C was low as 310 kcal and there was an increase in the energy expenditure as the patient was rewarmed to as high as 1,105 kcal at 37°C. **Conclusion:** The formula for calculating energy expenditure overestimates the energy requirement in a hypothermic patient. The energy requirement as noted on the indirect calorimeter was significantly low.

174. Comparison of Incidence Hypophosphetemia and Hypokalemia and the Risk Factors in Critically Ill Patients.

Shweta R Chandankhede

DOI: 10.5005/jp-journals-10071-23353.174

Objectives: To define the incidence of hypophosphatemia and compare it with incidence of hypokalemia and various risk factors for development of hypophosphatemia and hypokalemia after ICU admission. **Materials and methods:** It's a prospective observational study conducted over a period of 6 months from April 2019 to September 2019 in patients admitted to a tertiary care ICU. Incidence of hypophosphetemia on admission and development of same after admission was noted and compared with the incidence of hypokalemia. Various risk factors for the development of hypophosphetemia and hypokalemia were defined. **Results:** Chi-square test was performed to compare the incidence of hypophosphetemia and hypokalemia. Total 53% of patients had hypophosphatemia and 40% patients had hypokalemia on admission. Twenty percent and ten percent patients developed severe hypophosphatemia and hypokalemia, respectively after admission. Insulin therapy and sepsis were main risk factors for development of hypophosphatemia and hypokalemia. **Conclusion:** The incidence of hypophosphatemia in our ICU was higher than incidence of hypokalemia. The risk factor for development of both electrolyte deficiency are the same. Potassium is tested in ICU more frequently as compared to phosphorus testing. Thus incidence of occurrence of hypophosphetemia is missed leading to non correction of phosphorus deficiency.

175. Prospective Observational Descriptive Study of a Cohort of Patients with Necrotising Soft Tissue Infections (SSI's) Admitted to the Surgical Intensive Care Unit in a Tertiary Care Hospital in South India.

Jubin George

DOI: 10.5005/jp-journals-10071-23353.175

Background: The aim of this study is describe the burden and profile of patients admitted with SSI's. **Materials and methods:** In this prospective observational study, we recorded details of patients being admitted in the surgical ICU with a diagnosis of

SSI, and analyzed variables related to clinical features, laboratory data, microbiological data and details regarding resuscitation, organ failure and management. Primary outcome measured was death in hospital. Secondary outcomes included need ventilation, vasopressors amputation rate. Sample size of 100 was based on a prior pilot study done in the unit. **Results:** During the study period, a total of 1,457 patients were admitted in the ICU, out of which hundred had NSTIs (6.8%). Out of 100 patients recruited 34 died in hospital (mortality rate of 34%). Mean age was 56.6 (±11) years; 64 were male; median number of days of symptoms was 7 (0–14), median APACHE score was 17 (12–24), 35 patients had type I infection (polymicrobial) and 37 patients had type II infection (beta hemolytic strep/*Staphylococcus aureus* sp.), rest had no growth; 92 patients had involvement of the lower limbs, the patients needed an median of 1 (1–3) surgeries, 48 patients needed amputation, median number of days of mechanical ventilation requirement was 2 (1–3) days, 76 patients needed vasopressor requirement, and 7 patients needed dialysis. No single variable was associated as a risk factor for adverse outcomes by multivariate analysis. **Conclusion:** SSIs account for a significant burden of ICU admissions. Large proportion of patients needs amputation and there is a high mortality. It is possible that late presentation may be part of the reason. This study could be useful in devising appropriate antimicrobials and sample size calculations for therapeutic studies.

176. Stress Levels and its Determinants among Staff (Doctors and Nurses) Working in Critical Care Unit.

Shambhavi

DOI: 10.5005/jp-journals-10071-23353.176

Objective: To determine stress and coping of doctors and nurses. To find its association with selected variables. This may be an indication of the importance of exploring the work settings in order to understand what kind of stressors health workers experience. **Aim:** To identify job and organizational stressors do the doctors and nurses have in intensive care. Predictors for the job and organizational stress. To assess stress levels in doctors and nurses working in critical care units. **Materials and methods:** Study design: it is a cross-sectional study. Study population: the study participants are (doctors and nurses) working in critical care unit. Sample size: all doctors and nurses working in critical care unit. Estimated sample size is 100. **Inclusion criteria:** Staff (doctors and nurses) working in critical care unit who are willing to participate in study will be included. **Exclusion criteria:** Work experience in critical care unit is less than 3 months. **Data collection:** Through validated pretested questionnaire in google form. The questionnaire consists of structured questions with two sections: part A consists of sociodemographic details. Part B consists of work stress questionnaire which has been developed by ICMR, having 32 questions to be scored on 1/2/3/4 criteria, never—1, sometimes—2, frequently—3, and always—4. The scores were interpreted as: scores 32–64: you manage your stress levels very well. Too little stress can reduce stimulation, so strive to achieve the balance between negative and positive stress. Scores 65–95: you have a reasonably safe level of stress, but certain areas need improvement. Scores 96–128: your level of stress is too high. You need to develop new strategies to improve it. **Statistical analysis:** Statistical analysis will be done using SPSS software version 25. **Results and conclusion:** The study is expected to get completed by December 10th so final results will be discussed at the time of final presentation.

177. An Audit of Protocolized Sedation among Mechanically Ventilated Children in a Pediatric Intensive Care Unit.

Muthu Chidambaram N

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Objectives: To compare the duration of mechanical ventilation, sedation related adverse events, length of PICU stay and mortality rate between children receiving protocolized sedation and conventional sedation. **Design:** A single center prospective before and after study conducted between January 2018 and July 2019. **Setting:** Nineteen bedded predominantly medical PICU of a tertiary care teaching hospital in Puducherry, India. **Patients:** A total of 180 patients, between 1 month and 12 years requiring mechanical ventilation for more than 24 hours were included in the study. **Interventions:** During the first study phase (conventional phase) no written sedation protocol was used. During the second phase (protocol phase), all patients were sedated according to predominantly nurses driven protocol. **Measurements and main results:** The duration of mechanical ventilation was not significantly different between the conventional and protocol group even after adjusting the confounders [median IQR 82 (150–167) vs 94 (55–168), $p = 0.56$]. Daily dose [median IQR conventional group 3.1 (2.2–4.8), protocol group 2.2 (1.6–3.3), $p = 0.001$] and cumulative dose of midazolam [median IQR conventional group 9.3 (3.8–21.9), protocol group 7.8 (3.6–15.8), $p = 0.001$] were significantly decreased in the protocol group compared to the conventional group. The cumulative opioid dose as morphine equivalent was significantly decreased in the protocol group [median IQR conventional group 5.6 (2–13), protocol group 1.2 (0.57–2.6), $p \leq 0.001$]. Organ dysfunction scores pSOFA [median IQR conventional group VII (5–11), protocol group V (3–10), $p = 0.04$] and PELOD-2 [median IQR conventional group VIII (6–12), protocol group VI (4–9), $p \leq 0.001$] were significantly lower in the protocol group. The number of patients who developed significant withdrawal symptoms (WAT ≥ 3) was lower in the protocol group [26% (conventional group) vs 8.3% (protocol group), $p < 0.005$)]. No significant difference in the accidental extubation rate, PICU stay, hospital stay and mortality rate was observed between the two groups. Our adherence rate to the protocol ranged from 38% to 68% in various key components. **Conclusion:** The implementation of a predominantly nurses driven protocol was feasible and safe in our setting. Protocol implementation was associated with a decrease in the dose of midazolam and opioids and the occurrences of withdrawal symptoms along with improvement in the organ dysfunction scores.

178. Correlation between Time of Admission to Intensive Care and Mortality: A Retrospective Study in Tertiary Care Centre in North India.

Suredra Kumar

DOI: 10.5005/jp-journals-10071-23353.178

Introduction: Emergencies come unannounced and with no correlation to time, even admitted patients may suffer clinical deterioration and require admission in intensive care unit (ICU) at odd hours of day. It is well established that timely adequate resuscitation can improve outcomes in sepsis, vascular emergencies, trauma, and cardiac arrest. We also know that the despite the claims most hospitals are not fully equipped (staff, diagnostic services, etc.) at all the times. The present study is a retrospective analysis of patient outcome in terms of time of admission to ICU in a tertiary care hospital in north India. **Materials and methods:** A retrospective analysis of outcome

of patients admitted at intensive care unit of Regency Hospital Ltd, Kanpur was done in relation to the time of admission to ICU over a period of one year from 1st October 2018 to 30th September 2019. Department of Intensive Care Medicine is accredited for IDCCM, IDCCN courses of ISCCM and has round the clock cover by clinical associate in intensive care. For the sake of study patients were divided in two group day (admission between 9 am and 9 pm) and night (9 pm and 9 am). The outcome parameters studied were survival at discharge from ICU and hospital, survival at day 28 of admission, length of stay in ICU and hospital, initial appropriate antibiotic cover, correlation of initial working diagnosis to final diagnosis at discharge. **Results:** The *ad hoc* analysis of data collects revealed that on an average 170–220/month admissions were made to ICU, approximately 60% of which happened in night hours. There is a trend towards higher length of stay in ICU in the night admission group, slightly higher mismatch between initial and final diagnosis in night admission group, however the outcome in terms of survival did not show any significant difference in two groups.

179. Serial Reassessment of the Sofa Score and Delta Sofa to Predict Outcome in Critically Ill Patients.

Reshmi S

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Objectives: To evaluate whether delta sofa score correlates with outcome and can be used as a marker of poor prognosis. To compare delta sofa with APACHE IV score in outcome prediction. **Materials and methods:** Prospective observational cohort study from 1 November 2018 to 1 May 2019 conducted at a 22 bedded medico surgical ICU in India. Five hundred and two consecutive patients admitted to ICU for more than 48 hours for whom sofa score was calculated at admission and at third, fifth and seventh day. APACHE IV score was recorded at admission. Initial sofa, delta sofa scores, mean sofa scores, APACHE IV score obtained during ICU stay was recorded and their correlation with mortality was studied. **Results:** Total 502 patients were studied of whom 52 expired with mortality rate of 10.4%. Average sofa score at admission was 6.57 (SD 3.6) average APACHE IV score of 17.4 (SD 2.8) average length of ICU stay of about 8 days and total hospital stay of 11 days. Day 7 and day 5 sofa scores had higher discrimination compared to day 1 and day 3 sofa scores with AUC of 0.96 and 0.93, respectively. APACHE II score of nonsurvivors were higher than survivors with statistically significant *p* value. Initial sofa, mean sofa, delta sofa correlated well with mortality. Delta sofa was a better predictor of mortality than sofa score. **Conclusion:** The results showed that serial measurement of sofa score during first week is very useful tool in predicting outcome. The APACHE IV score though reliable, was not very effective in predicting the mortality.

180. Comparison and Reliability of Lactate and Electrolyte Levels using ABG and Biochemistry Auto Analyzer in Patients in Critical Care Unit.

Guttikonda Neeraj

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Introduction: Lactate and electrolytes like sodium and potassium are essential to determine the prognosis of the patients in critical care unit. In routine clinical practice, both the blood gas analyzer (ABG) and the clinical biochemistry laboratory autoanalyzer (AA) are used for getting electrolyte values and lactate. But, there is some uncertainty regarding the data about the comparability dependent on the pH value. **Materials and methods:** Two hundred samples from intensive care unit patients with a range in pH values between 7.20 and 7.49 were evaluated for electrolytes and lactate levels in this study. Five mL of arterial blood was collected to analyze electrolytes and lactate levels using ABG analyzer and biochemistry auto analyzer. We used scatter plots to compare different distributions of sodium, potassium and lactate values between the methods. Comparability of the analyses was assessed using the Bland–Altmann approach, and intraclass correlations (ICC) as estimates of reliability were calculated. **Results:** The mean sodium value was 140 mmol/L (SD 4.20 mmol/L) in the biochemistry auto analyzer and 141 mmol/L (SD 4.80 mmol/L) in the ABG assessment and the Bland–Altman comparison for sodium displayed agreement were small (–0.44 to 0.59 mmol/L) for total measurements. The mean potassium level measured on ABG was 3.80 mmol/L (SD 0.38 mmol/L), and the value obtained using the biochemistry auto analyzer was 3.71 mmol/L (SD 0.45 mmol/L), Bland–Altman comparison for total potassium measurements revealed that the limits of agreement were small (–0.344 to 0.381 mmol/L) and total ICC displayed a very good correlation of 0.959. Total ICC only reached a value of 0.94. In lactate analysis also there is no much variation between the methods. **Conclusion:** Our study reveals that decisions based on lactate, sodium and potassium measurements can be made by trusting the value obtained on the ABG machine irrespective of pH values.

181. Effect of Supplementation of Vitamin C and Thiamine on the Outcome of Sepsis.

Gayathri Ranie AP

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Introduction: The global burden of sepsis is overwhelming and novel therapeutic agents is the need of the hour. The present study was designed to understand the role of malondialdehyde as a marker of the oxidative stress in sepsis, as well as the effect of supplementation of vitamin C and thiamine in patients of sepsis. **Materials and methods:** Eighty patients of sepsis were randomly divided into 4 groups of 20 each. Twenty age-sex matched healthy volunteers were chosen as controls. The first group received vitamin C, the second group received thiamine, the third group received both and the fourth group received neither. Vitamin C (2 g 8 hourly) and thiamine (200 mg 12 hourly) were given intravenously for five days. The outcome was recorded in terms of mortality in the various groups as well as by the improvement in SOFA scores (ΔSOFA). The serum levels of vitamin C, thiamine and malondialdehyde were estimated. **Results:** Among the 80 patients, 17 (21%) were in septic shock. The mortality rate was 10% overall, and 47% among patients of septic shock. No additional mortality benefit was observed in the groups supplemented with vitamin C and thiamine. However, the ΔSOFA score in patients who received both vitamin C and thiamine was significantly higher as compared to the other groups. The mean malondialdehyde level was higher in patients of sepsis (1.81 ± 1.18 µmol/L) as compared with healthy controls (0.78 ± 0.36 µmol/L). The vitamin C level and thiamine level (estimated indirectly by TPP effect), at presentation were 5.14 ± 4.19 ng/mL and 52.99 ± 28.45% in patients of sepsis, which was significantly lower than that in healthy controls, in whom the levels were 14.64 ± 5.51 ng/mL and 27.55 ± 13.67%, respectively. **Conclusion:** Vitamin C and thiamine supplementation is a cost-effective approach with a good safety profile. Additional studies including a larger population is required to study the mortality benefits and reaffirm our findings.

182. Comparison of Oral and Intravenous Vitamin C in Patients with Dengue Fever: A Randomized, Control Open Label Trial.

Swati

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Objective: Dengue is one of the commonest tropical infections in India. The objective of the study was to analyze the effect of oral and intravenous vitamin C in the management of dengue fever. **Materials and methods:** This open labeled randomized prospective study was carried out for a period of July 2019 to October 2019, in which 150 patients with fever, malaise along with positive NSI antigen and/or positive IgM antibody against dengue virus were enrolled. Patients were randomized into three group. Group II was given oral vitamin C tablet (1,000 mg) twice daily and group III was given intravenous vitamin C (1,000 mg) and group I was kept as control. The primary endpoint was platelet count less than 50,000. The secondary endpoint was platelet count less than 20,000 duration of hospital stay, patient satisfaction and secondary bacterial infection. **Results:** Eighty one percent patient in control reached thrombocytopenia less than 50,000 of which 15% had less than 20,000. Test groups group II (oral vitamin C) and group III (intravenous vitamin C) had platelet count less than 50,000 in 76% and 75% patient, respectively and this was clinically insignificant ($p = 0.48$ between group I and group II, $p = 0.45$ between group I and group III). But compared to other groups, group III had significantly less patients with platelet count less than 20,000 (15% in control group vs 5% in intravenous vitamin C, p value = 0.02). Three patients in control group had secondary bacterial infection within 10 days of dengue positive compared to none in other two groups. Overall patient satisfaction was best in group III. **Conclusion:** In conclusion, our study found a positive outcome of giving intravenous vitamin C to the patient with dengue fever.

183. Comparative Study between Conventional (Palpation Guided) and Ultrasound Guided Radial Artery Cannulation.

Debtirtha Goswami

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Introduction: The insertion of radial artery cannula for blood pressure measurement and blood sampling is almost universal in intensive care environment. The catheter is usually inserted by using a blind palpation technique,[1] using ultrasound for catheterization of radial artery has been associated with reduction of complications and improve first-pass success rate in multiple studies.[2–4] However, the published data are mixed. So, our study is designed to compare the impact of both techniques. **Aims and objectives:** Our primary goal is to compare the rate of successful cannulation of radial artery using different cannulation techniques. **Secondary objects:** First-pass success rate. Total number of attempts. The time taken to cannulate. Any complications related to the procedure. **Materials and methods:** Study design: prospective, randomized, interventional study. Subject/participant selection: inclusion criteria: all adult critically ill patients (age group 18–60 years) admitted in ITU (intensive therapeutic unit). Exclusion criteria: signs of skin infection/wound near puncture site. Recent arterial puncture <1 month earlier. Peripheral artery disease. Patients requiring emergency surgery. Sample size: We have done this study taking total 80 patients. They were randomly divided into 2 groups: palpation guided group (Gr.—P) and USG guided group (Gr.—U) of 40 patients in each group. **Recruitment:** Recruitment and randomization was done using a computer-generated table. **Proposed duration of study:** Eight months (April to November 2019). **Conduction of procedure:** After taking informed consent procedures were initiated under the guidance of Prof (Dr) Bhakti Banerjee (Das), HOD, Department of CTVA, RG Kar Medical College and Hospital. **Statistical analysis:** Chi-square test (Fisher's extra test) for qualitative variables. Independent sample t test for quantitative data and p value. **Results:** There was no significant difference in terms of time to cannulate (p value > 0.05) and number of attempts required (p value > 0.05). Cannulation was possible in almost all the cases. The mean heart rate, mean blood pressure and SpO_2 % was comparable in both groups. In Gr. P, 1 patient had local hematoma at cannulation site followed by cannula site infection, in Gr. U, 1 patient had thrombosis and 1 patient had limb discoloration. Overall complication rate was 1/40 (i.e., 97.5% success rate) in palpatory method, 2/40 (i.e., 95% success rate) in USG method. The success rate was 97.5% in Gr. U and 95% in Gr. P, which is statistically significant (p value > 0.05). **Limitation:** Small sample size is the limitation of this study. **Conclusion:** There was no statistically significant difference between P and U groups in terms of success rate, time taken to successfully cannulate the radial artery and number of attempts required for cannulation. So, we can conclude that palpation and USG guided methods are equally good choice for radial artery cannulation. In institutions where USG device is not available or clinicians are not familiar with placement of arterial catheter by USG guided techniques, palpation guided arterial catheterization is an alternative choice.

184. Nutritional Practice and Outcomes in a Mixed Intensive Care Unit of a Indian Tertiary Hospital.

Pritish J Korula

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Objectives: Describe practice of nutrition in an Indian tertiary level ICU; to determine the relationship between the timing of initiation of nutrition (enteral or parenteral) and patient outcomes (ICU-free days). **Materials and methods:** Prospective observational study conducted in two ICUs of a tertiary level critical care unit of an academic hospital, patients recruited between January and June 2019 were included if ICU stay was more than 48 hours. They were divided into early nutrition (feeding initiated within 48 hours of admission) and delayed nutrition groups (initiated feeding after 48 hours). Based on modified NUTRIC score on admission, patients were grouped into high nutrition (modified NUTRIC score ≥5) and low nutrition risk (modified NUTRIC score <5). Since primary objective was to determine effect of timing of initiation of nutrition (early vs delayed) on ICU-free days, sample size calculation was done with statistical input from a pilot study (average difference of 2.5 days on the ICU free days between early nutrition group and delayed nutrition group, power of 80%, 5% level of significance, 2 sided test, the study required totally 352 patients). **Results:** Of 489 patients recruited, 293 (59.9%) were males, mean APACHE II score 15.6 (SD 7.3), mean admission SOFA score 5.8 (3.8), median BMI 24.2 (21.4–27.7), 103 patients (21.1%) had high nutrition risk, 179 (36.6%) patients had early nutrition and the rest (63.4%) delayed nutrition. There was no difference in median ICU-free days between early nutrition and delayed nutrition in the entire cohort; 24 (19–25.5) and 24 (16–25) days, respectively; $p = 0.591$ as well as in the high-risk group 17 (0–26) and 18 (0–26), respectively. **Conclusion:** Time of initiation of nutrition has no effect on ICU-free days in this cohort. Most patients admitted however had low nutritional risk. Adequately powered studies need to examine effect of timing of feeds on high nutrition risk patients.