

PAPER SESSIONS: ORAL

Cardiovascular & Hemodynamic: F01-F02

F01

COMPARISON OF FEMORAL ARTERIAL BLOOD PRESSURE WITH RADIAL ARTERIAL BLOOD PRESSURE IN SEVERE SHOCK- A PROSPECTIVE OBSERVATIONAL STUDY

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Introduction: Invasive arterial BP monitoring is common practice in hemodynamically unstable patients. Radial artery is the most frequent site followed by femoral artery. However best site for catheter insertion is controversial especially in severe shock requiring multiple & high dose vasoactive support.

Objective: To compare femoral arterial BP with radial arterial BP in patients with severe shock.

Materials & Methods: A total of 20 patients admitted at ICU LHRC were included in study. Our inclusion criteria were age 18-75 years, hemodynamically unstable patients requiring high dose & multiple vasoactive agents i.e. noradrenaline >0.5 mcg/kg/min & dopamine >15mcg/kg/min and/or vasopressin and suspected catheter related infection. We excluded post cardiac surgery patients, patients with catheter malfunction and patients with peripheral arterial disease. For femoral 18G 15cm catheter (arteriofix) and for radial 20G 8cm catheter (arteriofix) were used. Indwelling catheters were connected to two separate transducer system & simultaneous systolic, diastolic, mean BP were recorded over 5 minutes at an interval of 1 minute.

Observation & Results: Most of patients (14 out of 20) had septic shock & remaining had cardiogenic plus hypovolemic shock. All patients had multiorgan failure mean SOFA and APACHE-II score being 10 & 22 respectively. We found significant difference in systolic, diastolic & mean BP between femoral and radial artery. Femoral BP was significantly higher than radial BP.

Conclusion: Femoral (central) and radial (peripheral) artery measurement of BP do not show agreement. It is mandatory to cannulate femoral artery in patients with severe shock requiring multiple & high dose vasoactive drug support.

F02

STUDY OF FOCUSED ASSESSMENT OF TRANSTHORACIC ECHOCARDIOGRAPHY (FATE) PROTOCOL IN POST CARDIOTHORACIC SURGERY PATIENTS.

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Objectives: to evaluate the utility of FATE protocol in decision making in adult post cardiothoracic surgery patients in intensive therapy unit. **Materials and Methods-** 366 patients among the 1200 adult patients undergoing cardiothoracic surgery including valve repairs and replacements, bypass grafting and aortic aneurysm repairs were studied over a period of four months. FATE protocol

was followed in these 366 patients when there was clinical indication for echocardiography. Four views- apical, parasternal, sub-xiphoid, and pleural views were examined by a senior consultant intensivist using a standard GE ECHO machine. Assessment of usefulness of FATE was made in four categories - (i.) Poor window/ no information (ii) Support of existing information (iii) Added new information (iv) Added decisive information

Results: A total of 366 patients were studied, and decisive information was obtained using FATE in 246 (67.21%), new information was obtained in 32 (8.74%), and in 86 (23.49%) FATE supported already existing information. 2 (0.66%) patients had very poor ECHO window. Of the 246 patients, FATE aided in decision making, in terms of requirement of surgical intervention including Inter Costal Drain (ICD) insertion and re-exploration in 80 patients, in 234 patients medical management and duration of mechanical ventilation were directly influenced by FATE findings and another 50 patients were extubated aiding in early transfer out of the ITU. Results were analyzed using CHI square test and was found to have a significant p value <0.0001.

Conclusions: FATE protocol in post cardiothoracic surgery patients, when performed by an experienced operator/ clinician yields definite benefit and may be recommended as a definitive tool aiding in decision making.

Economics, Logistics and Quality Issues: F03-05

F03

BEDSIDE CART SYSTEM AND ITS EFFECTS ON WORK DYNAMICS OF CRITICAL CARE NURSES

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Bedside Cart System And Its Effects On Work Dynamics of Critical Care Nurses Introduction: The outcome of patients admitted in ICU is closely related to the nursing attention they receive during the severe illness. Optimizing nurse ergonomics results in more clinical time, short response time and fewer complications.

Objectives: To determine if the introduction of a bedside cart system will maximize the clinical time spent by nurses with their respective patients, save time to complete tasks and result in better transfer of care. **Methods:** We designed a unique portable cart able to be stocked with commonly used patient care equipment. It has specifically designed, Pre-packed and named cabinets. We then proceeded to have a mock-standardized and subjective assessment with questionnaire (score 0 easy and 10 difficult).

Results: Three nurses were randomly selected and assigned to three separate mock drills namely new admission, patient care and hand over. We standardized the tasks. The results with cart Vs without cart were, 10s Vs 40s to start oxygen by mask, 40s Vs 70s to start monitoring, 50s Vs 160s for starting IV fluid, 60s Vs 120s for blood sample collection, 70s Vs 100s for administration of antibiotic, 7s Vs 30s for initiation of back care, 145s Vs 18s for file handover and 25s Vs 30s for inventory handover. The results of subjective assessment were, new admission average score was 0.09 with cart Vs 4.38 without cart, in patient care it was 0.61 with cart Vs 5.19

without cart and in handover it was 0 with cart Vs 3.4 without cart. Conclusions: We noticed that this new cart system can significantly increase the time spent by the nurse with each assigned patient which results in increased early detection of bad physiology, proper medication, less medication errors and significant improved outcome.

F04

IMPLEMENTATION OF LOW TIDAL VOLUME VENTILATION IN AN INDIAN ICU

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Background: Literature suggests that ventilating patients with tidal volumes $>6\text{ml/kg}$ can lead to increased incidence of ventilator induced lung injury in all groups of critically ill patients and increase mortality in ARDS. We report the results of a quality improvement project for uniform implementation of a protocol mandating a tidal volume of $<6\text{ml/kg}$ in all mechanically ventilated patients.

Methods: This study was conducted in a 23 bedded medical-surgical ICU of a tertiary care hospital having semi-closed intensive care units from Nov 09 to Oct 10. We analysed tidal volumes of ventilated patients over one year. The heights of all patients were measured, ideal body weights and target tidal volumes were calculated as 6 ml/kg ideal body weight and marked prominently on the nursing chart in red. Nurses and junior doctors were trained. A daily check list of tidal volume on a CQI (Continuous Quality Improvement) form was maintained by the consultant. Results: 298 Patients were ventilated during the above mentioned period of time comprising 1825 ventilator days. 46.64% of ventilator days the patients were being ventilated at a higher tidal volume during the pre intervention period. After the quality improvement initiative our number of ventilator days with high tidal volume progressively declined to 0.99% at the end of 1 year. (table 1)

Conclusion: Auditing our performance is the cornerstone of any quality improvement initiative. Simple interventions and consistent efforts can ensure low tidal volume ventilation and potentially protect patients from VILI. Table 1 Nov-09 46.64% Dec-09 27.47% Jan-10 33.12% Feb-10 27.89% Mar-10 19.7% Apr-10 33.12% May-10 8.69% Jun-10 18.62% Jul-10 8.48% Aug-10 7.95% Sep-10 4.92% Oct-10 0.99%

F05

ISCCM -MARS - MOBILIZATION-ANALGESIA-RELAXANT-SEDATION SURVEY - PRELIMINARY FINDINGS

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MARS Study Group

Objective: As a study group we plan to evaluate the current concept and practices of sedation-analgesia-muscle relaxation and mobilization of critically ill patients in Indian ICUs with a nation wide web based survey.

Design and Method: The survey questionnaires were sent to 9452 physicians [critical care physicians and anaesthesiologists (who dedicate some of their time caring for critically ill in an intensive

care unit (ICU)] from 1st Sept to 31st November 2012.. The database of the participating doctors was obtained from Indian Society of Critical Care Medicine (ISCCM) and Indian society of anaesthesia. Each of the registered members of the society was sent an E mail link through which they could access the internet based survey (MARS- Mobilization- Analgesia-Relaxation- Sedation). Repeat reminder was sent through E-mail to the non-responders after every seven days.

Results: The 568 responders constitute 6.129% of the total number of physicians contacted. About three fourth (74%) of the respondents were anesthesiologist who practice critical care and 7% of the respondents are primarily respiratory physicians and rest were from other specialities. Majority of the physicians were under 10 years (67%) in to their practice of critical care medicine. 30 % of the total participating critical care physicians were attached to institutions that run a formal educational course in critical care medicine.

Majority of the participating ICUs are semi-open (52%) and open type (34%), whereas closed ICUs consist of only 14 % of the total. 61 % of the physician state that they work in set up where there are more than one doctor for ten critically ill patients. Most common cause for ICU admission were sepsis with multiorgan dysfunction and acute respiratory failure (24% each).

55% of the participating physicians score their patients' severity and the most common scoring system used is APACHE II (39%). 72% of the practicing physicians have a dedicated physiotherapist in their team. An analgo-sedation is the most common approach for intubated patients. Both narcotic (fentanyl 25%) and non-narcotic (paracetamol 24%) are the common analgesics used. NSAID are the least commonly used analgesics (7%). 36% of the physician sort for alternate analgesic methods and Epidural analgesia is the alternate method of choice. Midazolam is the most commonly used sedative (14%) followed by propofol and fentanyl (10 % each). Ketamine is the least commonly used in the group.

69% of the physician say that they use Dexmedetomidine as one of the sedating agents. Majority of the physicians (87%) do use paralysis in some of their patients and severe refractory hypoxia and ARDS (72%) constitute the major indication. 58% of the participating clinicians assess level of sedation and Ramsay's scale is most commonly used (38%).

Majority of the responders (67%) rate pain in their patients (most common scale used Visual Analogue Scale used by 23% physicians).

64% of the responders say that less than 10% of their patients experience delirium during their ICU stay but only 26% of them do an objective assessment of it by a scale (CAM-ICU 15%). Haloperidol (77%) is the most common drug used to treat delirium.

84 % of the critical care physician follow a protocol for weaning (physician driven in 80% cases) and this protocol is audited by 49% of the physicians. 79 % practice Spontaneous Awakening Trial (SAT) and 91 % perform Spontaneous Breathing Trial (SBT). SAT and SBT are performed within 48 hours by 46% and 41% of the physicians respectively.

Interestingly 93% of the participants think mobilization is important in recovery of critically ill and 85% regularly mobilize their patients Only 6% of the physicians do some sort of

mobilization in patients who are on ventilator and majority mobilize patients only after they are extubated.

CONCLUSION: This nationwide survey yields that majority of the physicians who practice critical care medicine in India are under the age of 40 years and are relatively new to their practice.

It also gives an overview of the current practice in the field of sedation, analgesia, paralysis and mobilization in critically ill patients. Narcotics and non-narcotics are equally used anagesics and NSAIDs are rightly avoided. Though Midazolam is most commonly used sedative, but the current evidence driven use of fentanyl, propofol and dexmedidomidine is encouraging. It is really encouraging to find that majority of critical care physicians in the country are pro-mobilization and mobilizing the critically ill are a routine practice in majority of Indian ICUs. However there is lot of scope of increasing mobilisation of patients on mechanical ventilation, which is practiced scarcely.

Neurology: F06 - F08

F06

VINAYAKA COMA SCALE, NEW COMA SCALE IN EMERGENCY ROOM

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Introduction: The Glasgow coma scale(GCS) has been widely adopted in all emergency department for initial assessment of patients. But GCS has some limitation as it not able to asssses the brain stem reflex which has significant role in prediction of out come of a patient.so Recommend new coma scale VINAYAKA COMA SCALE (VCS) which consist eye response, motor response, brain stem reflex and respiration pattern. Aim: To compare Vinayaka coma scale(VCS) and Glasgow coma scale(GCS) in assessment of out come of patient with neurological manifestation coming to ED in a multispeciality teaching university hospital.

Methodology: This prospective analytical study was done in tertiary care university teaching from march 2012- august 2012. all patient coming to emergency room with altered sensorium are in nerological manifestations were included. The patients who went against medical advice and those whose follow up not possible were excluded from the study. The admitting emergency physician was asked to fill up the predesigned proforma which contain the parameters - verbal response, motor response, respiratory pattern, and brain stem reflux appropriate later Glasgow coma scale and Vinayaka coma scale was derived and patients outcome was assessed on regular followup.

Result: Total 156 patient are rated with Vinayaka coma scale(VCS) and Glasgow coma scale(GCS) .Odd ratio of prediction of mortality in Vinayaka coma scale(VCS) is higher than GCS. ODD RATIO OF PREDICTION OF MORTALITY: Glasgow coma scale Vinayaka coma scale RTA 10.5 15.2 STROKE 2.04 9.33 ALTERED CONSCIOUSNESS 4.56

Conclusion: Vinayaka coma scale which is used as initial assessment of patient in ED by emergency physians is more useful in decision making of airway protection and prognosis of the patients of patient with neurological manifestation in ED.

F07

CROSS SECTIONAL STUDY OF HYPOKALEMIC PERIODIC PARALYSIS

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Objectives: To study the aetiological ,clinical and metabolic profile of hypokalemic periodic paralysis.

Methodology: A total of 22 patients were studied over a period of 18 months. HPP was defined as acute flaccid paralysis with documented hypokalemia during the episode and recovery following treatment. All the patients were subjected to detailed history,neurological exasmination and detailed evaluation for secondary causes of hypokalemic periodic paralysis.

Results: Out of 22 patients 13 were primary HPP and 9 were secondary HPP. PRIMARY HPP: □ Males 12 / Females 1 □ Mean age:28 years □ Mean duration of symptoms : 18 hours SECONDARY HPP: □ Males 6 / Females 3 □ Mean age:38 years □ Mean duration of symptoms : 60 hours □ CAUSES: 1) THYROTOXIC : 5 2) INFECTIVE DIARROHEA:2 3) CROHNS:1 4) CONNS:1 Total number of patients referred as GBS : 10

Conclusions: □ Our study had more patients with PRIMARY HPP and in patients with secondary causes THYROTOXIC HPP is the commonest cause. □ Patients presenting with long duration of symptoms , age > 30 years and females usually had SECONDARY HPP. □ PERIODIC PARALYSIS has a close similarity to GBS and should be excluded before starting therapy for GBS.

F08

HEAT-RELATED ILLNESS CLINICAL FEATURES AND OUTCOMES: A CASE SERIES

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Objective: ICU admissions due to heat related illness is common. We evaluated the clinical features and outcome of these patients admitted to our ICU.

Materials and methods: Study design: observational study We included all patients admitted during April to July 2012, with fever and neurological symptoms and absence of meningism. We excluded patients with features of infection in CSF analysis and neuroimaging studies showing acute CVA or CNS infections. Data on demographics, co-morbid illness, APACHE II, SOFA scores, echocardiography and neuroimaging studies were collected. Outcome data included, mortality, ICU length of stay (LOS), ventilator days, hospital LOS and discharge SOFA. Statistical analysis was done using student t-test, chi-square test and multi-variate analysis. Results: 26 patients were analysed. 15 were males. The mean age was 53.12 (±18.6) yrs (Mean ± S.D). Mean APACHEII was 19.6 ±7.7 and SOFA was 7.5 ± 2.6. Frequent co-morbid illness included hypertension (38%), diabetes mellitus (26%), neurological diseases (23%) and coronary artery disease (11.5%). The common presenting symptoms were neurological symptoms (100%), fever (88%) and gastrointestinal symptoms (30%). Incidence of organ dysfunction includes, neurological impairment (100%), raised creatinine (57%), hepatic impairment (34%), coagulation abnormalities (26%).No patient had an acute infection

on admission. MRI findings suggestive of heat stroke were seen in 6 of 26 patients. Mortality rate was 34%. 7 of 17 patients discharged had residual neurological impairment. Mean discharge SOFA was 2.43 ± 1.5 .

Conclusion: Heat-related illness had high mortality and significant neurological morbidity. No other significant residual organ dysfunctions were noted.

Nutrition: F09

F09

PREVALENCE OF MALNUTRITION AMONG ICU PATIENTS IN A TERTIARY CARE HOSPITAL IN INDIA

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Prevalence of malnutrition among ICU patients in a tertiary care hospital in India
ABSTRACT Introduction: Malnutrition adversely affects clinical outcome of hospitalized patients. This observational prospective study was done to assess the prevalence of malnutrition and its grade among patients admitted in a mixed ICU of a tertiary care hospital. This would help in devising a comprehensive nutrition program for the malnourished. Materials and Methods: 500 sequential patients admitted to the ICU were screened on admission over a year period for malnutrition using the Subjective Global Nutritional Assessment (SGNA) score. Distribution of the degree of malnutrition according to co-morbidities was also documented. Results: 198 (39.6%) patients were found to be malnourished including only one patient qualifying as severely malnourished. 68% of the population was male, however, there was no statistically significant difference between nutrition status of the two genders. Hypertension, diabetes and cancer were the three most commonly encountered co-morbidities among the malnourished. 86% of all cancer patients admitted were malnourished against only 12% of trauma patients. Conclusion: This study showed that almost two thirds of the patients admitted were malnourished in this tertiary care hospital and there is an urgent need to develop a comprehensive nutritional care program in many such Indian ICUs.

Others: F10 - F22

F10

DEXMETETOMIDINE VERSUS MIDAZOLAM INFUSION FOR SEDATION IN MECHANICALLY VENTILATED PATIENTS IN CRITICAL CARE SETTING: A RANDOMIZED CONTROLLED TRIAL.

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Introduction: Midazolam (GABA receptor agonist) is the most commonly used sedative for mechanically ventilated patients, but has various adverse effects. Dexmedetomidine, an alpha-2 agonist available for ICU sedation, may reduce the duration of mechanical ventilation and enhance patient comfort. **OBJECTIVE:-** To determine the efficacy of Dexmedetomidine versus Midazolam in

maintaining sedation; reducing duration of mechanical ventilation; side effects if any.

Method: We have studied 60 patients of ASA I & II of either sex between age group of 18 to 65 years. The patients were divided into two groups and sedated with Dexmedetomidine (loading dose of 1 mcg/kg over 10 minutes and maintenance dose of 0.2 to 0.7 mcg/kg/hr) or Midazolam (loading dose of 10 to 50 mcg/kg slow i.v. and maintenance dose of 20 to 100 mcg/kg/hr). Study drugs were titrated to achieve the desired level of sedation, measured using the Richmond Agitation-Sedation Scale (RASS). Patients were monitored for delirium using the Confusion Assessment Method for the ICU (CAM-ICU).

Result: Dexmedetomidine attained the sedation target range more frequently than Midazolam at a targeted Richmond Agitation-Sedation Scale range. In Dexmedetomidine treated patients, the median time to extubation was shorter ($P < 0.05$ which is clinically significant) and the prevalence of delirium was lower than in patients treated with Midazolam. The most frequent adverse event in the Dexmedetomidine group was bradycardia and hypotension.

Conclusion: From the clinicians and patients perspectives, Dexmedetomidine is a safe and acceptable sedative agent for those requiring intensive care with short median duration of mechanical ventilation and lower prevalence of delirium.

F11

IMPACT OF TELE-ICU/E-ICU ON ANTIBIOTIC STEWARDSHIP

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Introduction: Antibiotic resistance is a major challenge being faced by every clinician today; Tele-ICU/E-ICU which is used to support patients remotely was used to optimize antibiotic usage in ICU.

Material and methods: Retrospective observational study from October 2011 to July 2012 in Raipur Heart command centre (HCC), having 10 beds. All patients admitted to HCC were tracked, baseline characteristics, APACHE II score and antibiotics used were recorded and statistically analysed and compared with pre and post Tele-ICU/E-ICU implementation in which modified rational use of antibiotics was suggested for all patients getting admitted. (Antibiogram was established, staff training, daily Tele medical rounds with doctors along with documentation, CME on rational antibiotic usage, de-escalation teaching, monthly review of data).

Result: In our analysis baseline characteristics of patients were similar. From October 2011 to February 2012 (pre Tele-ICU/E-ICU) total 435 patients were admitted (mean APACHE II score 8) of which 344 (79.02%) patients received antibiotics of which carbapenam usage was in 283 (82.26%) patient. From March 2012 to July 2012 (post Tele-ICU/E-ICU) total 432 patients were admitted (mean APACHE II score 9) of which 266 (61.57%) patient received antibiotics of which carbapenam usage was in 98 (36.84%) patient. After Tele-ICU/E-ICU implementation, with smart oversight antibiotic usage decreased from 79.02% to 61.57% ($P <$

0.001), P value significant. Among all antibiotic usage carbapenam decreased from 82.26% to 36.84% ($P < 0.001$), P value significant. (Chi-square test was applied, P value < 0.05 was considered significant).

Conclusion: While the impact of Tele-ICU/E-ICU as a solution to provide remote critical care cannot be doubted, the true benefit will be realized by additional value adds in the form of antibiotic policy modification and quality changes as documented above. We intend to continue to monitor such impact and standardize protocols to improve efficacy going forward.

F12

IMPACT OF AN ICU-LED MEDICAL EMERGENCY TEAM (MET) ON OUTCOMES IN AN INDIAN CORPORATE HOSPITAL

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Objectives: We introduced a Medical Emergency Team (MET) in our hospital in January 2012 for early identification of and intervention on patients who might be at risk of deterioration in the wards. This study was undertaken after six months of MET implementation to assess its impact on patient outcomes.

Materials and Methods: MET calls were activated according to pre-defined criteria. Upon receiving a call, MET personnel assessed patients and carried out interventions as appropriate, including transfer to an intensive care area if required. Follow up of patients who continued to receive care in the wards was carried out during regular MET rounds, four times a day. Data collected included the incidence of "unexpected" cardiac arrests, hospital mortality, ICU mortality and ventilation days during the six months prior to and six months after implementation of MET.

Results: We received 899 calls during the first six months of MET implementation. Most calls originated from the high acuity care wards of the hospital. The majority of patients (75.3%) received continued ward care with regular MET follow ups. "Unexpected" cardiac arrests in the wards decreased significantly during the first six months post-MET compared to six months pre-MET (0.82 Vs 2.4 per 1000 hospital admissions; $p=0.0002$). Pre Vs Post-MET hospital mortality (15.6 Vs 16.9 per 1000 hospital admissions; $p=0.43$), ICU mortality (15.9 Vs 15.1%; $p=0.8$), ventilation days (Median (IQR): 3, (1.2-6) Vs 3, (2-6); $p=0.73$) and ICU days (Median, IQR: 4, (3-8) Vs 4, (1-8); $p=0.7$) did not change significantly during the same period.

Conclusions: The introduction of MET resulted in a significantly lower incidence of "unexpected" cardiac arrests in the wards. Hospital and ICU mortality, ICU days and ventilation days did not change significantly during the same period.

F13

THE OXIDATIVE STRESS DETERMINED THROUGH THE LEVELS OF ANTIOXIDANT ENZYMES AND THE EFFECT OF N-ACETYLCYSTEINE IN ALUMINIUM PHOSPHIDE POISONING

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Objectives: The study was aimed to determine the serum level of antioxidant enzymes and to correlate them with outcome in patients of aluminium phosphide (ALP) poisoning and secondly, to evaluate the effect of N-acetylcysteine (NAC) given along with supportive treatment of ALP poisoning.

Design: A case control study in patients of ALP poisoning. The test group started in May 2011 and the control started in November 2011; the study period ended April 2012 at tertiary care hospital. Interventions: The oxidative stress was evaluated in each subject by estimating the serum levels of the enzymes viz. Catalase, superoxide dismutase (SOD) and Glutathione reductase (GR). The test group comprised of the patients who were given NAC in addition to supportive treatment (magnesium sulphate and vasopressors, if required), while in control group only supportive treatment was instituted. Primary end point was the survival of the patients.

Measurements and Results: The baseline catalase and SOD were reduced, however GR level was not reduced rather was increasing with due time, and more so in test group. The baseline catalase ($P 0.008$) and SOD ($P < 0.01$) levels were higher among survivors than to Non-survivors. But, no association of outcome with baseline GR levels ($P 0.064$), but the levels on day 1 was associated with outcome ($P 0.017$). Out of total, 31 (67.4%) expired and 15 (32.6%) survived. Survival rate was 45.8% (11/24) in test group and 18.2% (4/22) in controls ($P 0.045$). Among who expired, the mean duration of survival was 2.92 ± 0.40 days in test group and 1.82 ± 0.33 days in control ($P 0.043$).

Conclusions: This study suggests that the baseline level of catalase and SOD have reduced in ALP poisoning, but baseline GR level has not suppressed, rather is increasing with due time, and more so in test group. NAC along with supportive treatment has improved survival in ALP poisoning.

F14

DVT IN MEDICAL & SURGICAL CRITICALLY ILL ICU PATIENTS IN A TERTIARY CARE CENTER IN NORTH INDIA; INCIDENCE & RISK FACTORS.

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Objective: Incidence, and risk factors for lower extremity DVT among critically ill medical-surgical patients as they are at high risk of DVT because clinical signs are not very evident.

Design: Prospective Cohort study for one year (1st Nov 2011 30th Oct 2012)

Setting: Open medical & surgical ICUs.

Patients: We enrolled patients >18 yrs of age, expected to be in the intensive care unit for >48 hrs. Excluded were; CTVS patients, Diagnosed PE/ DVT Patients with Valvular heart disease / valve replacement, Recently (Within 48 hrs) thrombolysed patients or Acute MI and CVA, Other pregnancy, congenital coagulation disorders and terminally ill patients. Interventions: Included bilateral lower extremity compression ultrasound within 48 hrs. of ICU admission, thereafter twice weekly and if venous thromboembolism clinically suspected. Thromboprophylaxis was universal. We recorded DVT risk factors & APACHE IV score at baseline. Patients were followed to ICU discharge.

Results: Of the 500 patients, 4 developed DVT and one suspected of PE, CTPA was negative. All patients received DVT prophylaxis as per of their risk score. The mean age was 62.80 ± 12.09 Yrs. All DVT positive patients were asymptomatic and of these 3 were male. The incidence rate of DVT was 0.8% (95% CI:-0.78-0.81). The length of ICU stay was identified as an independent risk factor (Mean= 26.75 ± 12.87 days and $P < 0.010$). The higher DVT risk Score (Mean = 10.75 ± 2.06 and $P=0.0264$), and APACHE IV score (Mean= 59.25 ± 15.06 and $P=0.0292$) were significantly associated with DVT.

Conclusions: In our setting (largest study of India) the incidence of DVT compared low (0.8 %) to the western population. Despite universal prophylaxis, medical & surgical critically ill ICU patients remain at high risk of DVT. Further research is needed to evaluate whether Doppler screening should be incorporated into the routine ICU care.

Key words;- DVT, CTPA, APACHE, CTVS, PE, CVA.

F15

PROBLEMS AND LIMITATIONS IN THROMBOLYSIS OF ACUTE STROKE PATIENTS AT A TERTIARY CARE CENTRE.

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Objective: To evaluate whether appropriate number of patients are thrombolysis within 1 hour of arrival to emergency room (ER). To identify reasons for delay in thrombolysis of acute stroke patients.

Materials and Methods: All patients admitted to ER with symptoms suggestive of stroke from January 2011 to November 2012 were studied. Retrospective data was collected to evaluate ER to needle (DTN) time and reasons for delay in thrombolysis therapy in acute stroke patients. The following parameters were studied- i) Onset of symptoms to ER time, ii) ER to imaging time (DTI), iv) ER to needle time (DTN) v) Contraindications for thrombolysis,

Results: 514 patients with suspected stroke were admitted during study period. 91 patients (17%, M = 64, F=27) arrived in ER within window period (<4.5 hrs.) 64 (70.4%) were contraindicated for thrombolysis. Majority were intracerebral bleeds. 27 (29.6%) were eligible for thrombolysis. 7 (26%) were thrombolised within 1 hr. (DTN). Average onset of symptoms to ER time: - 183.44. mins (median-195mins) Average DTI time: 56mins (+49.66mins 95% CI is 35.94, 76.06) median is 44.50mins, ($P=0.0041$). As compare to std DTI time (25mins). Average DTN time: 91mins (+ 41.39min 95% CI 74.85, 107.60) median 80 mins ($P=0.0094$) as compare to std DTN time (60mins).

Conclusion: Factors contributed for delay in thrombolysis are Absence of stroke education programme for common people Lack of priority for triage and imaging for stroke patients.

F16

GLYCEMIC CONTROL - IS INDIA SWEETER AND SAFER?

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Objective: Targeted blood sugar control (150-180 mg/dl) has been shown to improve morbidity and mortality in the ICU. However, feasibility, safety and outcome benefits of this strategy need to be evaluated in the Indian setting where nurse patient ratio may be suboptimal. Hence we sought to audit our glycemic control practices in an open, multi-disciplinary critical care unit (CCU).

Materials and Methods: Prospective observational study conducted at a tertiary care hospital between January to April 2012. Patients who were in the CCU for > 48hrs during this period were included in the study. Glycemic control was performed using either a standard CCU protocol or a physician driven insulin regime based on admitting physician's choice. Details including patients' demographics, severity of illness, daily glucose measurements, presence of sepsis, length of CCU and hospital stay were recorded for each patient. Day weighted mean glucose and mean variability were calculated using the blood sugar values.

Results: All patients Protocolized management Physician driven management Number of patients 105 64 (61%) 41 (39%) Mean age 58.9 ± 14.12 57.5 ± 15.01 61.1 ± 12.6 APACHE Score 27.2 ± 8.46 27.9 ± 8.6 26.0 ± 8.08 Day weighted mean (DWM) 178.5 ± 47.8 168.8 ± 40.03 193.8 ± 55.02 Mean Variability 92.66 ± 58.05 93.07 ± 61.4 91.04 ± 53.01 $DWM \geq 181 \text{mg/dl}$ 47.6% 40.6% 58.5% Hypoglycemia 0.46% 0.43% 0.52%

Conclusion: Protocolised glycemic control is feasible, safe and widely accepted in the Indian setting. Large proportion of patients with day weighted mean blood sugar higher than recommended were seen and likely contributed to the very low incidence of hypoglycemia in our setting.

F17

ELDERLY IN ICU: HOW WELL DO WE TREAT THEM?

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Background: Paucity of data exists regarding prevalence, course, morbidity and mortality of elderly patients (age ≥ 65 years) admitted to critical care units (CCU) in our setting. In this study, we sought to explore and compare the epidemiology of elderly patients in our CCU to that of younger patients.

Methods: Retrospective chart review of all patients admitted to our multidisciplinary CCU between May and October 2012 was performed. Data including demographics, severity of illness, need for mechanical ventilation, CCU length of stay and mortality were collected. Non parametric (Kruskal-Wallis) test was used to compare the variables between the two groups.

Results: $\leq 64 \text{ years}$ $\geq 65 \text{ years}$ Number of Patients (N) 344 184 Mean Age \pm SD 43.97 ± 13.2 72.83 ± 6.80 APACHE II (Mean \pm SD) 25.31 ± 10.3 29.24 ± 9.7 % Medical (n) 96.5% (n=332) 93.5% (n=172) % Surgical (n) 3.5% (n=12) 6.5% (n=12) CCU Length of stay (Median) 4 days 5 days Predicted mortality (for the APACHE II scoring)* 51% 51% Actual Mortality 23% 26.60% Standardized Mortality Ratio (SMR) 0.45 0.52 % Ventilated (n) 58.7% (n=202) 51.1% (n=94) Actual Mortality in Ventilated patients 31.6% (n=64) 38.3% (n=36)

†There are no statistically significant differences between the groups in any of the outcome variables

Conclusion: A significant proportion (34.8%) of CCU patients is elderly. In our study, elderly patients did not have worse clinical outcomes compared to younger patients. Treatment decisions, therefore, should not be made solely on the basis of age in the critical care setting. *Data from Knaus WA et al. Crit Care Med 1985;13:818-29.

F18

ROLE OF PRALIDOXIME IN ACUTE ORGANO-PHOSPHOROUS POISONING, A PROSPECTIVE RANDOMISED CONTROL STUDY

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Objectives: Organophosphate (OP) is one of the common modes of poisoning in India. The role of pralidoxime (PAM) in the management of OP poisoning is controversial and also expensive. We undertook a study to investigate the effects of pralidoxime in OP poisoning.

Materials & Method: Patients presenting with organophosphate poisoning to the ER in NH were consecutively randomized to either PAM and atropine or atropine only, on an intention to treat basis. Pregnant ladies were excluded.

Results and Statistics: 30 patients were enrolled. Mean age of the group which received only Atropine was 27.71 years with SD of ± 9.762 . Mean age of the group which received both Atropine with PAM was 31.07 years with SD of ± 9.610 (p-value 0.360). The s.choline-esterase in group which received only Atropine was (5147.86 ± 5912.42) U/L & S.Choline esterase levels in the group which received both Atropine with PAM was (2070.8 ± 2215.63) (p-value 0.085 with unequal variance) The duration of ICU Days was (4.79 ± 3.81) in the atropine group and the duration of ICU stay in the Atropine and PAM group was (7.6 ± 3.66) (p-value 0.05). The duration of hospital stay in the group that received Atropine was (7.07 ± 4.514) and the mean duration of hospital stay atropine and PAM group was 9.4 ± 3.69 (p-value is 0.139).

Conclusion: In our study we have not found any advantage for using PAM with regard to Intermediate syndrome, ventilator days, total ICU stay and ICU mortality. Results from further recruitment of patients is awaited.

F19

PRESENTATION AND OUTCOME OF CYTOMEGALOVIRUS INFECTION (CMV) IN CRITICALLY ILL IMMUNOCOMPETENT HOSTS

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Objective: CMV infection in non-immunocompromised hosts has traditionally been considered to have a benign, self-limited course. However, in the medical literature there are a considerable number of reports of severe clinical manifestations of CMV infection in immunocompetent patients. We studied the clinical course and outcome of critically ill immunocompetent patient.

Materials and Methods: This is a retrospective observational

study. We collected the data of CMV PCR positive patients from Jan 2012 to Dec 2012. CMV PCR was either tested in blood and BAL or Blood only or BAL only. 101 patients were clinically suspected, and out of the 101, 23 tested positive. 14/23 patients were eliminated because of immunosuppression.

Results: Male-female ratio was 1:1.2. 4(44%) patients presented with predominant respiratory symptoms, 3 (33%) presented with predominant gastrointestinal symptoms, 1(11%) patient presented with CNS symptom and 1(11%) with CVS involvement. APACHE on day 1 of ICU was calculated. The range of Apache was as follows. 5 were 5-9, 2 were 10-14, and 2 were 20-24. All the patients required invasive mechanical ventilation, except 1 who was managed on NIV. Only 5 patients were treated with Gancyclovir. Out of 4 untreated patients, 2 died before the results came and in the other 2 spontaneous resolution of symptoms were noticeable, when PCR results became available. 5 patients (55%) died of CMV infection of whom 2 were not treated with gancyclovir. 3 patients got discharged and 1 patient is still in ICU.

Conclusion: In our study group of patients with normal immunity respiratory and gastro-intestinal systems were commonly involved. In patients not responding to the empiric antibiotic regimen and who continue to deteriorate, blood, BAL and urine samples ought to be sent for CMV PCR and treatment with gancyclovir initiated promptly.

F20

SAFETY AND COST-EFFECTIVENESS OF ACITROM FOR DVT PROPHYLAXIS IN CRITICALLY ILL PATIENTS REQUIRING PROLONGED MECHANICAL VENTILATION - A PRELIMINARY EXPERIENCE

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Objectives: Oral anticoagulants have been used for treatment and preventing recurrent thromboembolism in cardiac and orthopaedic cases. Evidence regarding the safety and efficacy of oral anticoagulants for deep vein thrombosis prophylaxis in critical care settings is lacking. We tried to analyze the efficacy and cost-effectiveness of acenocoumarol (acitrom) in preventing deep vein thrombosis in patients requiring prolonged mechanical ventilation.

Materials and methods: Patients requiring prolonged mechanical ventilation admitted to our ICU over a period of one year were included. All underwent DVT probability risk assessment and received low molecular weight heparin along with acitrom 2mg/day for five days, followed by dosing adjustments until international normalized ratio (INR) of 2-3 was achieved. After achieving the INR, heparin was stopped and patients were maintained on acitrom only. Therapy was monitored with INR, bleeding complications and lower limbs Doppler study. Results: Forty-five neurological patients requiring prolonged mechanical ventilation were included. Mean duration of mechanical ventilation and ICU stay was 38.57 ± 9.23 and 47.73 ± 16.22 days respectively. None of our patient had any complication related to acitrom therapy or any evidence of symptomatic or asymptomatic (Doppler) deep vein thrombosis during ICU stay or during follow-up of 3 months. The cost of Acitrom including the cost of INR

monitoring was only 330 Indian rupees (INR) for a thirty day therapy.

Conclusion: Acitrom appears to be a suitable alternative to other available therapies for the prevention of DVT atleast in this particular subgroup of critically ill patients.

F21

PROTOCOLISED TRAINING IN CARDIOPULMONARY RESUSCITATION-THE UNENDING REWARDS

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Background: Internationally accepted CPR guidelines have been published and revised from time to time. Training programs based on these are being conducted at all levels to impart cognitive training and improve psychomotor skills to perform CPR.

Aim: The aim of study was to evaluate the effect of formal CPR training on outcomes of cardiac arrest.

Materials and Methods: AHA certified BLS and ACLS provider trainings were started at end of 2009 in our hospital for doctors in critical areas, which was extended to other specialties and staff nurses during further courses. During post-intervention period, one of the certified ACLS provider had to be a part of the code blue team. The study was performed over 6 years, 3 years pre-intervention (2007-2009) and 3 years post-intervention period (2010-2012). All in-hospital cardiac arrest patients during the study period were included. We compared the response time and outcomes of resuscitation.

Results: There were total of 1042 in hospital cardiac arrests in pre-intervention period and 1122 cardiac arrests in post-intervention period. In pre-intervention period, 278 patients were revived (26.67%), compared to 458 patients in post-intervention period (40.8%). Survival to discharge ratio was significantly improved from 23.4% in pre-intervention period to 66.6% in post-intervention period. Response time to code blue calls decreased from 4 minutes to 1.5 minutes after intervention.

Conclusion: Formal trainings in resuscitation have emerged as an aide to develop team concept, orientation to respond to the codes and better recognition and management of peri-arrest scenarios, thereby improving the CPR outcomes.

F22

IMPLICATIONS OF DEDICATED TRACHEOSTOMY CARE NURSE PROGRAM ON COMPLICATION RATES

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Tracheostomies are a common occurrence in critical care units, aimed to maintain a patent airway in a patient. Tracheostomy care needs a multidisciplinary approach, particularly involving the nurses. Aims : Our aim was to identify and train the nursing staff to care for tracheostomized patients round the clock in non-critical care areas, thereby aiming to decrease tracheostomy- related complications. Methodology: A tracheostomy care nurse program was improvised by the intensivists with an objective of improving care of tracheostomized patients, where in nursing

staff from non-critical areas were selected for training purposes. The trainings included evidence-based knowledge & hands-on training of general tracheostomy management. A written assessment and a skill test was performed & nursing professionals were certified as 'Tracheostomy Care Nurses'. At least one of these tracheostomy care nurse was supposed to be responsible for all tasks relating to tracheostomy care in specific wards. A comparative data of 2 periods: A Pre-Intervention period from January 2011 to November 2011 and a Post-Intervention period from December 2011 to October 2012 was taken. Results: During pre-intervention period, out of 82 tracheostomized patients, 28 (34.15%) had complications including 20 (24.39%) readmissions to ICU. During post-intervention period, 107 patients had tracheostomy, out of which 7 (6.54%) had complications with only 2 (1.87%) readmissions. The number of decannulations increased during post-intervention period (25% vs. 15%). Conclusions: The support of a specialist tracheostomy nurse can decrease the complication rate and reduced readmissions to ICU.

Respiratory: F23 - F25

F23

VENTILATOR ASSOCIATED TRACHEOBRONCHITIS: EXPERIENCE FROM AN INDIAN ICU

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Introduction: Ventilator Associated Tracheobronchitis (VAT) is an entity, which has not been well studied especially from the Indian subcontinent. VAT represents an intermediate process between the colonization of the respiratory tract and development of ventilator associated pneumonia and per se is associated with significant morbidity, mortality and longer duration of ICU stay.

Materials & Methods: This is a prospective observational study carried out in a 60 bedded mixed ICU of a tertiary care hospital in India over 10 month period including 212 patients. All patients who were ventilated for >48 hours were included. VAT cases were identified by prospective surveillance of nosocomial infections. Clinical signs and symptoms included temperature >38°C, leucocyte count >12000 leucocytes/ mm or leucopenia (leucocyte count <4000 leucocytes/mm) plus new onset of purulent endotracheal secretions sans no new infiltrate on chest Xray.

Results: Out of the 212 patients 28 patients (13.2%) developed VAT. In the same period VAP developed in 24 patients (11.32%). The majority of the patients (58%) who developed VAT were patients with neurological or neurosurgical problems. Mean time to develop VAT from the time of mechanical ventilation was 7.3 days. The meantime from ICU admission to VAT onset was 10.7 days. The most common bacteria isolated from Endotracheal secretion of VAT patients was Acinetobacter sp. (40%), and Pseudomonas aeruginosa (40%), followed by Enterobacteriaceae. 100% of the Acinetobacter and 33% of Pseudomonas were MDR organisms.

Conclusion: The incidence of VAT in this Indian study was much higher than data from North American hospitals and calls for better infection control practices in this part of the world.

F24**REAL TIME ULTRASOUND GUIDED PERCUTANEOUS TRACHEOSTOMY - WITH AND WITHOUT BRONCHOSCOPIC CONTROL**

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Objectives: To compare the safety and feasibility of percutaneous dilatational tracheostomy (PDT) done under real time ultrasound guidance, with and without bronchoscopic control.

Materials and Methods: Retrospective analysis of PDTs over an 18 month period was carried out. After preparation, the neck was viewed in the transverse axis using a 12 MHz linear probe and the thyroid, cricoid and tracheal cartilages were identified. The probe was placed over the first (T1) or second (T2) tracheal cartilage. The introducer needle was inserted immediately caudal to the probe at its midpoint, aiming entry between T1-T2 or T2-T3. After insertion of the guidewire, its position, as represented a clock face was noted. Entry between 11.00 and 13.00 was considered as "median" entry. The level of guidewire entry (T1-T3 or lower) was noted by turning the probe longitudinally. In the bronchoscope group, guidewire position was confirmed by fiberoptic bronchoscopy.

Results: Ninety five patients underwent PDT under real time ultrasound guidance with bronchoscope control (PDT - BR); 71 had ultrasound guidance alone (PDT-US). Needle to wire time was similar in both the groups ($p=0.08$); total procedural time was significantly shorter in the PDT-US group ($p=0.03$). Significantly more episodes of desaturation were observed in the PDT-BR group ($p=0.01$). Median entry, entry between T1 and T3 and number of attempts to pass the introducer needle were similar. PDT-US and PDT-BR groups did not show significant differences in the incidence of bleeding (5.6 Vs 7.3%), accidental extubation during the procedure (3.2% Vs nil) and tracheal stenosis at 2 months follow up (2.8 Vs 3.2%).

Conclusion: Bronchoscopic control did not add to the safety of real time ultrasound guided PDT; besides it resulted in lower oxygen saturation and longer procedural times. Real time ultrasound guidance prevents bronchoscope damage from the introducer needle leading to costly repairs.

F25**TIMING OF TRACHEOSTOMY IN ADULT NEURO TRAUMA PATIENTS UNDERGOING ARTIFICIAL VENTILATION AT A TERTIARY CARE HOSPITAL**

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Objective: To compare outcome in critically ill adult neuro trauma patients undergoing artificial ventilation who received percutaneous tracheostomy Early (<5days) or Late (>5days) in their treatment course.

Materials and Methods: Duration of data extraction was from June 2010 to June 2012. Analysis of records of patients who underwent tracheostomy and required artificial ventilatory support was done. Total no of patients ($n=91$). Early group (44) and Late group (47). The primary outcome measured in the study was mortality in hospital. Secondary outcomes were duration of

artificial ventilation, length of stay in the critical care unit and length of stay in hospital. Data analysis was done by using SPSS 17.0 (statistical package for social science). We also used Mann-Whitney test to compare the hospital stay, critical care unit stay and duration of artificial ventilation.

Results: Early tracheostomy did not significantly alter mortality. (relative risk 0.966, 95% confidence interval 0.699 to 1.32). Early tracheostomy as compared to late tracheostomy significantly reduced 1) Duration of artificial ventilation (6 days vs 9 days, $P=0.002$), 2) Length of stay in critical care unit (10 days vs 20 days, $P=0.001$) 3) Length of stay in hospital (15.5 days vs 30 days, $P=0.011$).

Conclusions: In critically ill adult neuro trauma patients who required prolonged artificial ventilation performing tracheostomy at an earlier stage may shorten duration of artificial ventilation, length of stay in critical care unit and length of stay in hospital. However mortality was not significantly affected.

Sepsis: F26 - F28**F26****USE OF MOLECULAR DIAGNOSTIC TECHNIQUE USING 'MULTIPLEX NUCLEIC ACID AMPLIFICATION' IN THE MANAGEMENT OF SEPSIS PATIENTS AT A TERTIARY CARE MEDICAL ONCOLOGY INTENSIVE CARE UNIT**

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Several infections resulting into life threatening sepsis are very common among oncology patients due to variety of reasons including drug or disease induced bone marrow suppression apart from immune compromised status due to underlying malignant disorder. Early initiation of appropriate antimicrobial therapy remains as one of the corner stone of sepsis management. The conventional culture methods take significantly longer time for detection. Moreover positive viral or fungal cultures are extremely cumbersome in most practical settings. Syndrome Evaluation System (SES), a multiplex Nucleic Acid Amplification Test (NAAT) for identification of organisms causing sepsis has been developed by XCyton. SES allows for multiple amplification of most of probable organisms (DNA) that are known to cause sepsis and the amplified product is detected by hybridization of the targets and probes. SES is rapid with assay time of 7 hours and detects all common organisms accounting for 95% of all cases of sepsis.

Objective: This study was to test efficacy and effectiveness of SES in about 50 patients with suspected life threatening infections.

Material & Methods: This diagnostic tool was utilised in tertiary oncology ICU at HCG/Bangalore during July 11 to Oct 12.

Result: Culture results were 24+ hrs delayed than SES. Out of the samples, 40 BAL samples were mostly polymicrobial while most of the 20 CSF samples were uni-microbial. Results of SES were in concordance with cultures further were rapid, specific, sensitive and lead to change of the antibiotics from empirical to a guided therapy in number of cases. Finally the cost effectiveness were compared between results obtained from SES and conventional

culture. Further specifics will be shared and discussed.

F27

COMBINED BLOOD CULTURE AND MULTIPLEX PCR MAY POTENTIALLY OBTAIN NEED FOR DIAGNOSTIC BRONCHOSCOPY IN ICU PATIENTS WITH SEVERE SEPSIS AND SUSPECTED PNEUMONIA: A PILOT STUDY.

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Objectives: Evaluation of combined results of Bactec blood culture (BBC) and multiplex PCR (SES™ of Xcyton, Bangalore) (M-PCR) results as useful surrogate of bronchoscopic bronchoalveolar lavage (BAL) culture in severe sepsis with suspected pneumonia.

Materials and Methods: Case records of ICU patients with severe sepsis with suspected pneumonia, undergoing bronchoscopy, where blood M-PCR had been obtained were retrospectively analysed. In 9 patients (10 episodes) concordance of combined results of blood M-PCR and BBC with that of BAL was ascertained.

Results: In 6 episodes M-PCR picked up same organisms that BAL did (only in three of them simultaneous BBC could do the same). In 2 episodes BAL culture was sterile but either BBC (1) and/or M-PCR (2) was positive suggesting primary blood stream infections. In one patient BAL revealed *Stenotrophomonas maltophilia* and BBC showed *Citrobacter freundii* neither being part of M-PCR panel. Similarly one BAL revealed *Micrococcus* species that was not picked up by BBC and is not on M-PCR panel. In three patients BAL specimens grew *C. tropicalis* (2) or *C. Gullermondi* (1) but were not identified by either BBC or M-PCR.

Conclusion: In 6 of 10 episodes M-PCR was concordant with BAL (only in 3 BBC too was concordant). They also identified correctly another 2 episodes that had negative BAL culture and simultaneously identified a blood stream infection. In two patients M-PCR (and BBC too) missed bacterial isolates in BAL as these organisms were not included in M-PCR panel. Though 3 BAL specimens had positive *Candida* isolates, only one was identified on BBC. This may be attributed to these being colonizers and hence in smaller numbers in the lungs. Hence, minimally invasive blood sampling for M-PCR and BBC together may help to avoid invasive procedure of bronchoscopy in sick ICU patients.

F28

IMPACT OF MULTIPLEX PCR ON DIAGNOSIS, MANAGEMENT AND OUTCOMES OF SEVERE SEPSIS AND SEPTIC SHOCK IN ICU

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Objectives: To compare multiplex PCR (SES™ of Xcyton, Bangalore) (M-PCR) with Bactec culture (BC) in etiological diagnosis of patients with severe sepsis and septic shock and its impact on outcome. **Materials and methods:** Fifty eight bronchoscopic BAL and 15 blood samples (from 71 patients with

73 separate admissions) from adult patients with severe sepsis or septic shock were tested by Bactec culture and M-PCR. Empirical antibiotics were modified based on the results. Index infection, ICU, hospital outcomes were compared with matched controls.

Results: Samples were obtained from 71(73 admissions) study [mean \pm SD age 57.44 \pm 18.8yrs] and 73 control patients [age 61.37 \pm 16.47yrs]. There was no significant difference in the age ($p=0.18$), sex (49M in cases and 55M in controls; $p=0.36$) APACHE IV score (85.52 \pm 30.92 vs. 81.24 \pm 26.29; $p=0.37$) between the groups. Septic shock was seen in 65 cases (89.04%) and in 48 controls (65.75%); $p=0.001$. Index episode cure were 35(48.61%) in both arms ($p=1.0$), ICU mortality 34 (46.57%) in cases and 30 (41.09%) in controls ($p=0.58$) and hospital mortality 35(47.94%) in cases and 32 (43.83%) in controls ($p=1.0$). M-PCR and BC detected a total of 270 and 56 microorganisms respectively. Between M-PCR and BC there was complete concordance in 37 (30.68%), complete discordance in 6 (8.21%), partial discordance in 4 (5.47%). BC was negative with positive M-PCR in 25 (34.24%), BC was positive and negative M-PCR in 1 patient (1.37%). Time to antibiotic therapy modification based on M-PCR was 33.01 hours and that based on BC alone was 64.79 hours ($p<0.001$).

Conclusion: Multiplex PCR helps in identification of greater number of organisms and early modification of empirical therapy. Despite higher percentage of septic shock in the M-PCR group the mortality was not significantly different in the two study arms.

Nursing: F29

F29

A RANDOMIZED TRIAL OF PROTOCOL DIRECTED PAIN MANAGEMENT IN THE INTENSIVE CARE UNIT

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Background: critically ill patients experience pain and discomfort in the intensive care unit. Unrelieved pain and also excessive drugs can result in adverse outcomes in these patients. So in this study, the pain protocol implemented by nurses to assess and manage pain in critically ill patients.

Material and Methods: In this clinical trial, 201 patients were entered and randomly allocated to protocol (96 patients) and control groups (105 patients). A multidisciplinary team approved a protocol. In the protocol group patients were assessed for pain by Behavioral Pain Scale (BPS) / Numeric Pain Scale (NPS) every one hour and managed pharmacologically as protocol. The patients in the control group were managed as the routine of the ICU.

Results: No significant difference was observed between the the protocol and the control group regarding the demographic characteristics and APACHE IV score. Fentanyl was significantly reduced in the protocol group from 1002.38 \pm 3774.43 versus 63.13 \pm 161.04. There was a reduction in the amount of other applied analgesics such as morphine, sufentanil and acetaminophen but it was not significant. The patient had no pain in 84%, mild pain in 11%, moderate pain in 3% and severe pain in 2% of total hours of ICU stay.

Conclusion: The implementation of a nursing-driven protocol of pain can improve the pain detected by the nurses and appropriate doses of analgesics to manage the critically ill patients.

PAPER PRESENTATION: POSTER

Basic Science: P001 - P003

P001

A STUDY OF IN VITRO SENSITIVITY OF CEFEPIME + TAZOBACTAM & OTHER ANTIMICROBIAL AGENTS AGAINST ENTEROBACTERIACEAE ISOLATED FROM HOSPITALIZED PATIENTS OF A TERTIARY CARE HOSPITAL IN KOLKATA, INDIA. (ASCENT)

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Objectives: Cefepime+Tazobactam, a novel Betalactam + Betalactamase (BL+BLI) combination, is expected to cover ESBLs, AmpC and OXA, can be promising option for infections caused by such bacteria in the era of bad bugs no drugs. We planned an in vitro study at a tertiary care center at Kolkata, India as a part of ongoing ASCENT study; to determine the prevalence of ESBLs and other betalactamases, along with sensitivity of Cefepime+Tazobactam compared to other widely used antibiotics. **Methods:** 500 isolates of Enterobacteriaceae were collected from the inpatients. Production of various betalactamases (Carbapenemase/ESBL/AmpC/ESBL+AmpC Coproduction) was checked by standard confirmatory or screening methods. In vitro sensitivities of each isolate to seven non Carbapenem antibiotics (Amikacin, Levofloxacin, Cefotaxime, Cefepime, Cefepime+Tazobactam, Piperacillin + Tazobactam and Cefoperazone+Sulbactam) were determined by disc diffusion method using standard CLSI or available breakpoints.

Results: 25.6% produced carbapenemase, 43.8% produced ESBL and 8.4% were ESBL+ AmpC co producers. In ESBL producers sensitivities of Cefepime+Tazobactam, Piperacillin+Tazobactam and Cefoperazone+Sulbactam were 94%, 85.3% and 86.7% respectively. In probable AmpC producers, only Cefepime+Tazobactam showed 100% sensitivity. In probable ESBL+AmpC co producers, Cefepime+Tazobactam showed only 4.7% resistance, whereas Piperacillin+Tazobactam and Cefoperazone + Sulbactam resistance were 73.8% and 52.3% respectively. Overall sensitivities- Amikacin (62%), Levofloxacin (31.4%), Cefotaxime (21.6%), Cefepime (21.6%), Cefepime + Tazobactam (66.8%), Piperacillin+Tazobactam (59.2%) and Cefoperazone + Sulbactam (60.6%).

Conclusions: Increasing prevalence of Multi drug resistant Gram negative bacteria in India underscores need to explore alternative antibiotic options. With excellent sensitivity against ESBL and ESBL+AmpC producing bacteria, Cefepime+Tazobactam can be a rational and useful choice in such infections in ICUs as carbapenem saving strategy.

P002

HYPOCALCEMIA IN CRITICALLY ILL HOSPITALIZED PATIENTS.

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Hypocalcemia is frequently encountered in critically ill hospitalized patients. The most accurate measure of true hypocalcemia is ionized calcium level. This study was done to ascertain the frequency, risk factors and outcome in critically ill patients admitted to the ICU with hypocalcemia.

Materials and Methods: The patients were divided into two groups: hypocalcemic (iCa⁺⁺) level < 1.16 mmol/l and normal iCa⁺⁺ groups (1.16–1.33 mmol/L). The time from inclusion to death in the two groups was compared with the use of the log-rank test, and the results are presented as Kaplan–Meier curves. **Results:** Of the 279 patients included in the study, 200 (71%) were hypocalcemic (serum ionized Ca⁺⁺ < 1.16mmol/l) and 79 (29 %) were normocalcemic. The hypocalcemic group had significantly lower ionized Ca⁺⁺ levels and higher Acute Physiology and Chronic Health Evaluation II (APACHE II) score when compared to those of the normocalcemic group (p < 0.05). Patients with severe sepsis, trauma, APACHE II score greater than 25, renal failure patients requiring renal replacement therapy and those who had undergone emergency surgery were more likely to have low serum ionized Ca⁺⁺ (p < 0.05). Patients with low serum ionized Ca⁺⁺ values spent a longer time in the ICU (p = 0.02) and had an increased mortality rate (p < 0.05), than patients in the normocalcemic group.

Conclusion: (1). Ionized hypocalcemia is a frequent finding in critically ill patients. (2) Severe sepsis, trauma, emergency surgery and renal failure are predisposing factors for hypocalcemia. (3). Patients with low serum ionized Ca⁺⁺ values had longer ICU stay and longer mechanical ventilation days (p=0.003) (3) Patients with ionized hypocalcemia have a higher mortality rate than those with normocalcemia; however, because the former are more severely ill, no causality is apparent or suggested.

Key-Words: Hypocalcemia, critically ill.

P003

A PROSPECTIVE STUDY ON CONFIRMATION OF PERCUTANEOUS DILATATIONAL TRACHEOSTOMY (PDT) PLACEMENT USING VENTILATOR DATA

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We prospectively analysed the use of ventilator data for the confirmation of TT placement by PDT and corroborated the findings with capnograph. **Objective:-** This prospective observational study was planned to assess the efficacy of aerodynamics data ssobtained from ventilator for the confirmation of TT placement by PDT. **Material and Method:-** Twenty five consecutive patients undergoing PDT in ICU were included in the study. The aerodynamic data from ventilator were measured at different time intervals from ET connecting end when the TT was in situ & were compared with the pre-procedure control value (Pc,Lc). The Ppeak and leak% were measured (1) before inflation of TT cuff with open connecting end of TT (P1,L1), (2) before inflation of TT cuff with occlusion of the connecting end of TT, (P2, L2) and (3) after Inflation of TT cuff, (P3, L3) . TT placement was confirmed by capnography as well. **Result:-** The PCLC, was 24 cm H2O & 8% and P1,L1 could not be obtained due to circuit disconnection alarm (as ET was open to atmosphere through TT), P2/L2 22 cm H2O, 20 %and P3/L3 42 cm H2O with

failure to ventilate (as airway got blocked by TT cuff) respectively. Obtained data were comparable with control (PCLC) for the confirmation of TT placement.

Conclusion: . This simple manoeuvre could be handy for proper confirmation TT placement, especially at small centres where capnograph is unavailable. However large no. of data is required to assess the effectiveness of this method in case of mal-positioned TT.

Cardiovascular and Hemodynamics: P004 - P008

P004

ACONITE POISONING : A CASE FOR EARLY AMIODARONE AND TEMPORARY PACING COCKTAIL.

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Aconite, often described as the “queen mother of poisons”, is one of the most deadly ancient poisons. In traditional medicine, aconite has been used for treatment of various conditions like rheumatism, chronic pain, leprosy & cholera. Even today, it is often used by Homeopathy and Ayurveda practitioners in India. Aconite contains aconitine alkaloids which are the causative agents of toxic features. Patients with aconite poisoning present predominantly with a combination of cardiovascular, neurological and gastrointestinal features. Possible toxic features include ventricular ectopics, varieties of tachy and bradyarrhythmias, hypotension, sensory symptoms like paresthesia and numbness, motor weakness, nausea, vomiting, abdominal pain or diarrhea. Lethal dose of aconite has been reported to be 1 to 2 mg. The main causes of death are refractory ventricular arrhythmias and asystole. Treatment is mainly supportive. Prompt hemodynamic support is the mainstay for preventing mortality. However, aconite-induced ventricular arrhythmias are often refractory to cardioversion and antiarrhythmic drugs and many case fatalities have been reported. The role of charcoal hemoperfusion to remove circulating aconitine alkaloids is not established. We report a case of suicidal aconite poisoning who presented with intractable nausea & vomiting, incessant arrhythmias and drowsiness. The arrhythmias were a combination of frequent ventricular ectopics, episodes of sustained ventricular tachycardia and intermittent bradyarrhythmias. The patient was successfully managed with prompt initiation of amiodarone and an early institution of temporary pacing along with other supportive measures. Our case highlights the importance of a combined approach of early amiodarone and early temporary pacing in patients with life threatening cardiotoxicity of aconite.

P005

HYPERSENSITIVE CAROTID SINUS REFLEX: ENTITY WARRANTS CAUTION IN THE INTENSIVE CARE UNIT.

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Carotid sinus hypersensitivity (CSH) syndrome is an uncommon entity caused by overreaction of the carotid sinus baroreceptors to stimulation. Three subtypes of CSH syndrome are recognized according to the response to carotid sinus massage: predominantly cardioinhibitory, predominantly vasodepressor and a mixed subtype. Etiological factors include female gender, advanced age (over 50 years), hypertension, coronary artery disease, vasovagal syncopal attacks, head and neck cancer, previous history of head and neck surgery with tight surgical scars.

We report here the case of a 32 years old female patient admitted in our intensive care unit with respiratory failure due to pneumonia requiring mechanical ventilation . There were episodes of severe bradycardia whenever her head was rotated to any side, relieved on neutralizing head position and administering intravenous atropine. Carotid sinus massage revealed she had predominantly cardioinhibitory type of CSH syndrome. She had no prior history of syncope or presyncope , history of head and neck surgery , and was on no cardiovascular medications. Her reports of transthoracic echocardiography and bilateral doppler of carotid arteries were normal.

Although CSH syndrome is detected in approximately one third of elderly patients who present with either syncope or falls, it is mostly asymptomatic. Atropine abolishes cardioinhibitory CSH. However, most symptomatic patients require pacemaker implantation. A cardioinhibitory form of hypersensitive carotid sinus reflex , which is idiopathic in causation, probably explains the severe bradycardia on head rotation seen in our patient . A heightened awareness of this syndrome is necessary for timely diagnosis and management .

P006

A CASE OF AORTIC ROOT ABSCESS WITH COMPLETE HEART BLOCK IN A PATIENT WITH ACUTE LYMPHOBLASTIC LEUKEMIA.

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Conduction abnormalities occur in 45% of patients with aortic vegetation with perivalvular abscess with an underlying bicuspid/quadracuspid valve. We are reporting a rare case with complete heart block, with aortic valve root abscess with out any underlying structural abnormality in an immunocompromised patient. A 19 yr male case of B-cell acute lymphoblastic leukemia. Presented with history of fever, cough and breathing difficulty. On evaluation having irregular pulse with rate of 110-120/min, with early diastolic murmur heard in the aortic area, ECG shows ventricular bigeminy. Over night was on NIV and was haemodynamically stable. Next day early in the morning Patient was complaining of dizziness, ECG was taken which shows bradycardia and complete heart block, within few minutes he had sudden cardiac arrest, he was resuscitated with ROSC of 1 min 30 seconds. Post ROSC transvenous Pacemaker was inserted and started on high dose inotropic supports. Transthoracic echocardiography shows aortic valve vegetations, with root abscess and with moderate to severe aortic regurgitation. Cardiovascular surgeon decided for valve replacement after

stabilization. Patient remained hypotensive even with high inotropic supports and was persistently hypoxic, finally he died on the same day by evening. On follow-up blood cultures were negative for any organisms.

Conclusion: The right and non-coronary sinus of Valsalva of aortic root lie close to the superior interventricular septum and bundle of His, therefore, infection at this site may cause bundle branch or complete heart block. The presentation of fever with a conduction abnormality should raise suspicion of infective endocarditis. In cases of aortic valve endocarditis associated with a perivalvular abscess, the mortality rate and incidence of recurrent infection are markedly increased. Early diagnosis and surgical treatment of a perivalvular abscess are essential.

P007

PULMONARY EMBOLISM WITH PERICARDIAL EFFUSION (TREATMENT DILEMMAS) - A CASE REPORT

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Background: The treatment of pulmonary embolism becomes very tricky when it is associated with complication like pericardial effusion. We are presenting a similar case. CASE - A 48 year old female presented with swelling of legs followed by breathlessness after a long distance travel. She was having Wells score more than 6 hence CT chest with Pulmonary angiogram done which was suggestive of Acute pulmonary embolism associated with Deep vein thrombosis of left leg. She was started on heparin infusion. Few hours later she developed sudden hypotension. On evaluation found to be have moderate pericardial effusion (PE). Heparin infusion was stopped. Repeat CT revealed further progression of pulmonary embolism. As there is no chance of giving thrombolysis or anticoagulants, it was decided to put her on IVC Filter. Condition of the patient remained stable after IVC Filter and she was discharged uneventfully. She again came back after 5 days with bilateral leg swelling. Doppler of lower limbs showed bilateral DVT with thrombosis extending up to iliac vein bilaterally. She had huge swelling with difficulty in walking. 2D ECHO revealed mild PE. It was planned to start her on anticoagulants. Risk of developing pericardial tamponade with anticoagulants was clearly explained to the attenders. She was started on heparin infusion. Echo was done every 4 hourly to see for increase in PE. Heparin was overlapped with warfarin. Surveillance ECHO continued till discharge. The pericardial effusion remained mild throughout hospitalization. She was discharged with warfarin in stable condition.

P008

SUDDEN CARDIAC ARREST IN A PATIENT POST ELECTROPHYSIOLOGICAL STUDY

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A 73 year old male was brought from a peripheral hospital post multiple cardiac arrests. At presentation to us, he was septic, coagulopathic, in acute renal failure and hyperkalemic (serum

potassium 6.2). He had associated hypertension, diabetes mellitus and ischemic heart disease. The ECGs showed bradycardia and nodal rhythms. He required two cycles of hemodialysis along with aggressive medical treatment. He was weaned off ventilator support in a couple of days and taken on T-piece. He never required any inotropic support. He continued to make adequate urine and his metabolic parameters came to near normal range (urea 53, creatinine 2.5, and serum potassium 3.7). In view of multiple cardiac arrests, and bradyarrhythmias, cardiology consult was sought. An additional piece of history was obtained from relatives that he had suffered from previous episodes of bradycardia, requiring hospitalization (syncope). The cardiologists considered the diagnosis of sick sinus syndrome. The echocardiography showed mild left ventricular diastolic dysfunction (ejection fraction >50%). A temporary pacemaker was inserted. The patient went into poorly tolerated supraventricular tachyarrhythmia subsequent to insertion of temporary pacemaker. Electrophysiological studies were planned for ablation of the reentrant pathway. The patient was hemodynamically stable when he went for the electrophysiological studies. (Serum potassium 4.3). The procedure was uneventful. However, he suffered post ablation sudden cardiac arrest (<30 minutes) and despite best CPR efforts, could not be revived. The cardiovascular collapse appeared to be myocardial failure rather than bradycardic collapse since the temporary pacing wire was still in place and functioning well. We intend to present a case of sudden cardiac arrest post electrophysiological ablation in a patient with multiple co-morbid conditions.

Endocrinology: P009- P011

P009

ITS ALL ABOUT THE SALT!

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A 35 year old male was admitted with Na of 112 and K of 8 (bicarbonate 20, chloride 86) with mild derangement of kidney and liver function with a background of ileal Crohn's disease and a functioning ileostomy done 6 months ago. He had a complicated recovery with his initial operation where he developed post operative abdominal collections, wedge splenic infarcts and developed iliac vein thrombus needing warfarin. He had couple of admissions post resection with electrolyte disturbances and sepsis and efforts to evaluate the cause were non diagnostic. The adrenals and thyroid were normal and CT adrenals did not highlight any haemorrhage. He required massive electrolyte replacement in ITU and was started on TPN. Efforts were made to correct the electrolyte imbalances with bicarbonate, fludrocortisone and fluid restriction. The urinary sodium loss did not favour salt losing nephropathies and the chloride was slightly low discounting the concept of Type IV Renal Tubular acidosis (coupled by lack of response to fludrocortisone). He was a bipolar patient on antipsychotics but the Serum osmolality / Urine osmolality were 261/296 and did not support an inappropriate ADH secretion issue/ psychogenic polydipsia. The only thing that was eventually targeted were the stoma outputs greater than 1000 mls per day and when the double barrel ileostomy was reversed 1 year after the initial operation, his Na/K corrected itself confirming the

diagnosis of "Salt losing Ileostomy". In patients with ileostomy it is concluded that colitic colon has an impaired capacity to absorb chloride and sodium but retains the ability to secrete potassium. The intestinal loss of chloride in addition to that of sodium and water may be regarded as a salt-losing diarrhoea and may account for the metabolic alkalosis commonly found in proctocolitis.

P010

AN UNUSUAL CASE OF ACUTE ADRENAL INSUFFICIENCY

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Introduction: Empty sella syndrome may be asymptomatic or manifested as features of multiple pituitary hormone deficiencies. We report a case history and describe diagnostic methods and management of empty sella syndrome with acute adrenal insufficiency.

Case Report: A 45 years old farmer presented with weakness, lethargy, dyspnea on exertion and loss of libido was initially diagnosed to have hemoglobin E carrier and primary hypothyroidism. He was given levothyroxine replacement (100ug/day). Few months later he developed fever with chills, loose motions and admitted in altered mental status in our hospital. On evaluation, he had hypotension, low plasma glucose (48 mg/dl) along with hyperkalemia and hyponatremia. Basal morning serum cortisol was 3.6 ug/dl and post synacthen cortisol was 6.4 ug/dl. He was managed with intravenous hydrocortisone and other supportive measures. Eventually, panhypopituitarism was diagnosed with small and grossly atrophic pituitary gland on magnetic resonance imaging (MRI).

Conclusion: Hypopituitarism should also be kept in mind and evaluated in a patient presented with hypothyroidism. Free T4 should also be measured when TSH value is in the subclinical range, otherwise central hypothyroidism may be missed. When there is deficiency of both thyroid hormone and cortisol, if thyroid hormone is replaced first without prior administration of corticosteroid, acute adrenal insufficiency may be precipitated.

Key words: Hypopituitarism, adrenal insufficiency, hypothyroidism, ACTH (Adreno cortitrophic hormone), TSH (Thyroid stimulating hormone), Levothyroxine

P011

AN UNUSUAL CASE OF STATUS EPILEPTICUS WITH MANAGEMENT QUANDARY

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Introduction: Primary hypoparathyroidism presenting as status epilepticus in adulthood is infrequent. We report an interesting case of recurrent seizures in an adult onset hypoparathyroidism patient with a focus on its management problem.

Case Note: A 50 year old female, presented to the emergency facility of a local hospital with status epilepticus which was

controlled with standard anti-convulsant therapy. CT scan brain was suggestive of calcifications involving basal ganglia, periventricular region and occipital cortex. On refusal for further hospital stay, she was discharged on request and was advised to continue oral phenytoin therapy. But, the patient reported to the emergency department of our hospital again after one month with similar presentation. On evaluation, she had serum Calcium: 4.3mg%, Phosphate: 8.7mg%. Other related biochemical parameters did not reveal any abnormality. Seizures were again controlled with parenteral anti-convulsants with simultaneous correction of hypocalcemia by calcium infusion. After recovery, on examination, extra pyramidal symptoms were present. Following this, primary hypoparathyroidism was diagnosed with inappropriately low iPTH level. In view of hypoparathyroidism, phenytoin therapy was omitted with a switch over to oxcarbamazepine and calcium and vitamin D replacements were initiated which she is tolerating well at present.

Conclusion: This case describes an unusual presentation of adult onset primary hypoparathyroidism as status epilepticus. Recurrent seizures with hypocalcemia warrants complete evaluation. As phenytoin may cause hypocalcemia by altering the bone and mineral metabolism, an alternative suitable anti-epileptic should be chosen in patients with hypoparathyroidism.

Key Words: Hypoparathyroidism, Status epilepticus, Hypocalcemia, Phenytoin.

Economics, Logistics and Quality Issues: P012- P015

P012

THE MEDICAL EMERGENCY TEAM (MET) : DOES IT REALLY MAKE A DIFFERENCE IN OUTCOME?

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Objectives: To determine ,whether implementation of a medical emergency team (MET) improved outcome in a tertiary care hospital.

Material and methods: The study incorporated patients admitted from MET activation (102) and without MET activation (101) from wards to ICU during the period of January 1, 2011 to December 31, 2011 in a tertiary care centre. We analysed total of 203 admissions during this study period. Analysis was done from MET data sheet and individual patient record files .Both groups were comparable in terms of MET activation criteria and APACHE-II score at time admission to ICU .Reason for shifting patient and incidence of calling rate per thousand admissions were analysed in both group. Primary outcome was mortality with in 72 hr and secondary outcomes seen were incidence of cardiac arrest.

Results: Data was analysed by Open Epi (version 2.3).A value $p < 0.05$ was considered significant. Analysis revealed the following, 1. Admissions to the ICU with MET activation were 102 (3.13 calls/1000 patient days, $p > 0.05$). 2. Admission to the ICU without MET activation were 101 (3.10 calls/1000 patient days, $p > 0.05$) 3. Incidence of cardiac arrest in MET vs. without MET activated group was (8 Vs 2, $p = 0.05$) 4. Mortality was 25.53 % in MET group and 16.16 % in without MET activated group.(24 Vs 16, $p > 0.05$) within 72 h.

Conclusions: In our single institutional study we found that MET implementation did not significantly decrease over all hospital mortality and incidence of cardiac arrest as compared to unplanned admission from wards.

P013

TO EVALUATE THE IMPACT OF RAPID RESPONSE TEAM (RRT) IMPLEMENTATION ON PATIENT OUTCOME DURING MEDICAL EMERGENCIES.

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Objectives: To evaluate the impact of Rapid Response Team (RRT) implementation on patient outcome during medical emergencies.

Materials and Methods: A retrospective analysis of 51 RRT data sheets was done for patients for whom RRT was activated during 6 months (January 2012 to June 2012) following inclusion/exclusion criteria. RRT record forms were collected from manager (Quality and Training). Data sheets were included for all inpatients and outpatients irrespective of their age, gender and diseases profile. Descriptive statistics was applied to address the objective of the study. Analysis of the data was performed on STATA 9.0 and R 2.13.2 statistical software.

Results: Analysis of 41 RRT records (10 RRT data sheets formed the part of exclusion criteria) collected over the period of 6 months showed that implementation of RRT is associated with decreased code blue calls (2.44%) and its associated mortality which is consistent with the findings of other studies. Mortality for the study period was found to be relatively low (4.88%). Average length of stay in ICU and hospital post RRT assistance for patients was calculated to be 2.55 and 6.95 respectively. Percentage of patients requiring higher level of care after RRT assistance was higher (75.61) than those who stayed in their room/ward (24.39).

Conclusion: Implementation of RRT in our hospital was found to be associated with reduced code blue events and its attendant mortality outside the ICU settings during the study period, advocating need and suggesting effectiveness of Rapid Response System for delivering patient care in critical situation.

P014

COST REPURCUSIONS AND OUTCOMES FOR PATIENTS WITH VENTILATOR ASSOCIATED PNEUMONIA IN AN INTENSIVE CARE UNIT OF A TERTIARY HOSPITAL IN INDIA

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Background and objectives: Data available on the economic consequence of ventilator associated pneumonia (VAP) in India is limited. Hence, this study was designed to evaluate the standard direct costs which can be attributed to VAP. Study population: One year (2011) retrospective database from a tertiary care hospital in Mangalore.

Methods: Patients with VAP were matched (1:1) with a control group (NON-VAP) according to predefined criteria (age, admitting diagnosis, Acute Physiology & Chronic Health Evaluation-IV (APACHE-IV) score & multiple organ dysfunction (MOD) score on day1). The enrolled patients were assessed for their expenditures according to four cost blocks (Clinical support services, consumables, staff & others [hospital fee]). The costs were standardized by using the Employees State Insurance reference price. Only the cost pertaining to Intensive care unit (ICU) was taken into account and the cost attributable to VAP was calculated as cost of VAP – cost of NON-VAP patients.

Results: Thirteen patients met the diagnostic criteria for VAP with an incidence rate of 22.22/1000 ventilator days. VAP patients had significantly higher ICU-length of stay (ICU-LOS) (24 vs.10; $p<0.05$), number of ventilator days (17 vs. 7; $p<0.05$) and total costs (Rs.1,66,140 vs. 63,956; $p<0.001$) when compared to the NON-VAP patients. The median extra total cost attributable to VAP was Rs.1,02,184. The consumables block accounted for 57.93% of the total costs followed by cost blocks pertaining to others (31.33%), clinical support services (7.74%) and staff (3%). Further analysis also revealed a significant increase in cost of VAP patients with regards to consumables cost block (Rs.94, 917 vs. 26,852; $p<0.01$), staff (Rs.4,890 vs. 1,640; $p<0.01$) and others (Rs.51,340 vs. 18,91; $p<0.01$).

Conclusions: The high cost reflects the burden on the patients due to nosocomial infections and reiterates on the health care professionals the need for implementing effective VAP prevention protocols.

P015

INTENSIVE CARE COST OF PATIENT WITH SEPTIC SHOCK AT A TERTIARY CARE GOVERNMENT HOSPITAL ICU

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Objective: To know average per patient and per day cost for the patient who are in septic shock at the time of ICU admission.

Material & Method: This retrospective study done in a 12 bedded ICU of department of critical care medicine from a government university hospital. Medical records and hospital information system were reviewed for ICU patient admitted with septic shock during January 1st 2012 to Jun 30th 2012. Proforma included: demographic profile, source and type of admission, severity score, outcome and; expenditure in INR overall as well as on medical surgical consumables, investigation, blood products and bed charges since admission till discharge.

Results: During study period 48 patients with septic shock admitted in ICU. Mean age was 36.6 years. Male 31 (65%), medical cases 41 (85%). Source of admission: emergency 16 (33%), other ICU 22 (46%), ward 10 (21%). Nosocomial 16 (33%), community 32 (67%). Mean APACHE II 18 and SOFA 11.7. Eight (17%) patient had upto 2 while 83% had >2 organ failure. 34 (71%) had no co-morbidity. 30 (63%) patient had microbiological confirmed infection (gram negative 73%). Median LOS 8 days. 22 (46%) survived at ICU discharge. Total average cost per patient was

1,11,404 [medical-surgical 84,472; investigation 9,962; blood product 7,143; bed charges 9,619]. Average per patient per day cost 13,171 [medical-surgical 9,986; investigation 1,177; bed charges 1137]. Total average cost per patient with hemodialysis: 1,39,436 [per patient/day 16,987]; while in without dialysis group total average cost per patient: 83,373 [per patient/day 9,583]. Total average cost per patient who survived: 97,539 [per patient/day 9,016]; while in non-survivor group total average cost per patient: 1,23,137 [per patient/day 19,056].

Conclusion: Average per day cost for septic shock patient is approximately 13,200 rupees (medical-surgical consumables 76%; investigation 16% and bed charges 8%) in a tertiary care government ICU.

Hematology and Immunology: P016 - P017

P016

METHEMOGLOBINEMIA MIMICS COMPLICATED MALARIA

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Methemoglobinemia; an increased concentration of methemoglobin in the blood, is an altered state of hemoglobin whereby the ferrous form of iron is oxidized to the ferric state, rendering the heme moiety incapable of carrying oxygen. It is an uncommon condition seen in clinical practice. Elevated levels of methemoglobin in the blood are caused when the mechanisms that defend against oxidative stress within the red blood cell are overwhelmed and the oxygen carrying ferrous ion (Fe²⁺) of the heme group of the hemoglobin molecule is oxidized to the ferric state (Fe³⁺). We present a case report of an adult male patient who was shifted to ICU with diagnosis of complicated malaria. Malaria test was positive and he had already received treatment of malaria. His bilirubin levels were highly raised. In ICU pulse oxymeter was showing saturation in range of 82-87% though PO₂ in ABG was normal. PBF revealed hemolytic pattern. Suspected Methemoglobinemia, G-6PD level was done, which were significantly decreased.

P017

PULMONARY ALVEOLAR HEMORRHAGE DUE TO VENOM INDUCED CONSUMPTION COAGULOPATHY (VICC) AFTER VIPER BITE.

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Snake bites are commonly encountered by emergency department (ED) physicians in tropical countries. Majority of snake bites victims are agricultural or farm workers from underdeveloped countries. The main stay in the management of snake bite is the use of polyvalent or monovalent anti snake venom serum (ASVS) and associated complications makes treatment very expensive. Various neurological, haematological and other complications of snake bite envenomation are well documented. We report a 50 year old man who developed VICC resulting in pulmonary alveolar haemorrhage, an unusual complication of viper bite. He had presented to ED with alleged snake bite over his left ankle, clinically found as a scratch mark and systemic toxicity.

Coagulation parameters were elevated and he was started on ASVS; was admitted to the Intensive care unit. Despite being on adequate ASVS and fluids, coagulation failure persisted and within 24 hours he had renal shut down requiring SLED. Further he had haemoptysis and CT imaging showed features of pulmonary alveolar haemorrhage. From world over reports of VICC in snake bites have been described in literature. To the best of our knowledge, no reports of pulmonary alveolar haemorrhage due to VICC have been reported from India. There are no specific recommendations on the management of prolonged snake VICC at present.

Hepatic and GI: P018 - P019

P018

PHYSICIANS CHALLENGE: ACUTE PANCREATITIS WITH MULTI-ORGAN FAILURE MASQUEARADING LEPTOSPIROSIS IN AN ENDEMIC AREA.

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Leptospirosis is a rational diagnosis in short febrile illness with hepato-renal dysfunction in its endemic area during monsoons. High clinical suspicion, early diagnosis and treatment can completely cure this spirochetal infection known for its protean manifestations and high fatality. In endemic areas rainy season favors stagnation of water, and the lesser privileged in the society are exposed to this potentially lethal infection. We present a young farmer who presented with a short febrile illness followed by multi organ dysfunction. He fulfilled modified Faine's criteria for the diagnosis of leptospirosis and was started on antibiotics and supportive care. However Ig-M for leptospira done was negative. While being investigated for persistent abdominal pain his pancreatic enzyme levels were markedly elevated. Subsequent CT imaging showed grossly edematous pancreas which was highly suggestive of acute pancreatitis. The patient recovered completely with antibiotics, dialysis and supportive care. Acute pancreatitis is a medical emergency associated with high mortality and multiple systemic complications. Reports of leptospirosis causing pancreatitis have been described in literature. Rarely acute pancreatitis presents as short febrile hepato-renal dysfunction; thus making this an interesting case to discuss as a critical care physician.

P019

CASE OF BOERHAAVE SYNDROME: MANAGING A COMPLICATION CONSERVATIVELY

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Boerhaave syndrome is rare and occurs mainly in males and at the left posterolateral wall of the distal esophagus without any apparent precipitating factor. The typical presentation includes severe retching and vomiting followed by chest or epigastric pain, dyspnea, and shock. We are presenting case report of a 48 years old

female admitted with c/of retching and chest pain for 2 months. She was anaemic, had leucocytosis, hypokalemia and hypomagnesemia. Chest X-Ray was showing consolidative changes in Right upper zone and left hydropneumothorax. Left chest drain was placed drained pus. CT chest showed oesophageal perforation at T8-T10 level. Upper GI endoscopy was showing ulcerated area with perforation in esophagus. Pus culture from left chest drain had grown E.coli, P. aeruginosa, & K. pneumonia, sensitive to penems only. Urine culture had grown P. aeruginosa and having same sensitivity as P. aeruginosa grown from chest. Diagnosis of Boerhaave Syndrome was made with history along with CT findings of oesophageal perforation with extravasation of contrast into pleural cavity. Patient was managed conservatively on antibiotics as per C/S, mechanically ventilated. Silicon coated fully covered expandable metal stent was placed for managing the oesophageal perforation. Nasojejunal feeding started after stent placement. Patient was discharged with tracheostomy tube in situ, with oral plus NG feeds and esophageal stent in situ.

Conclusion: Delayed diagnosis and treatment of Boerhaave syndrome, is reportedly fatal. Managing the patients conservatively, placement of covered stent & adequate nutritional supplementation can bring out the best for the patient.

Imaging and gadgets: P020 - P022

P020

ASSESSMENT OF HYPOTENSION IN NON TRAUMATIC PATIENTS IN EMERGENCY DEPARTMENT: CLINICAL VERSUS RUSH PROTOCOL

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Aim: To compare the accuracy of diagnosis in non-traumatic hypotension in the emergency department with and without using RUSH protocol.

Methods: This is a prospective analytical study done in emergency department of our tertiary care hospital from January 2011 to July 2012. All the patients aged above 18 years with systolic blood pressure of <100mmHg or shock index (pulse rate/systolic blood pressure) > 1.0 were included. Those with history of trauma were excluded from the study. Patients included in the study received the routine standard care and the possible diagnoses were recorded by an emergency Physician in order of likelihood at 15 minutes after arrival time. After 15 minutes, patients underwent the diagnostic intervention with RUSH protocol by a blinded emergency physician and recorded the ultrasound findings. At 20 minutes after arrival, clinical information and the rank 1 diagnoses made at 15 minutes were revealed. Then the revised rank list of differential diagnosis was made by both emergency physicians together using ultrasound findings and clinical materials which were compared to the cause of shock in final diagnosis.

Result: Out of 152 Patients, 90 were excluded. For 62 cases, based on clinical signs and symptoms alone different etiologies of hypotension were recorded. Hypotension assessed by clinical assessment, RUSH, RUSH+CA in order of percentage of sensitivity and specificity. Clinical assessment RUSH RUSH+CA

Cardiogenic 56% 100% 100% Sensitivity Distributive /Hypovolemic 63% 77.7% 92.59% Obstructive 58.8% 100% 100% Cardiogenic 80% 100% 100% Specificity Distributive /Hypovolemic 77% 94.2% 97.14% Obstructive 90% 100% 100%

Conclusions: The use of ultrasound RUSH protocol along with the clinical assessment is extremely efficient in early identification of the cause of hypotension in the Emergency and critical care medicine Department in non-traumatic patients.

P021

18F-FLUORO-DEOXYGLUCOSE PET SCAN IN CONFIRMING SOURCE OF FUO & INFECTION

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Objectives: To evaluate the role of FDG-PET-CT in diagnosing suspected infection in FUO. **INTRODUCTION:** Early identification of infection is vital for optimizing outcome. Functional and metabolic imaging techniques are often needed to support clinical and conventional investigations. The high sensitivity and relatively low specificity of PET-CT in locating the pathological focus of FUO are considered advantageous [1&2].

Methods: Retrospective analysis of 10 patients from July 2010 and ongoing observation till September 2012 with clinical and microbiological suspicion of infection. All underwent clinical examination, lab investigations, culture sensitivity, chest X-ray and either CT or ultrasound or echo before PET. Abnormal PET reports were categorized as "contributory" or "noncontributory" to diagnosis and reconfirmed by biopsy through CT, endoscopy or surgery. Abnormal PET scans were termed true positive, true negative, false positive and false negative with its sensitivity, specificity, positive and negative predictive values assessed. **Results:** 8 male & 2 female were enrolled till date, with a median age of 40.3 years. PET was contributory in 8 (80%) cases and non-contributory in 2 (20%) cases. True positives were (n=6), true negatives (n=3), false positives (n=1) and false negatives (n=0). The sensitivity for PET was 100%, specificity 75%, positive predictive value of 85% and negative predictive value of 100%.

Discussion: The high levels of sensitivity and relatively lower specificity are noticeable in our study. High negative predictive value is important in preventing excessive antibiotics therapy and invasive procedures. Bleeker-Rovers retrospectively studied contribution of PET to diagnosis of 35 patients with FUO or suspicious infectious foci and reported 37% as contributory to diagnosis with 93% sensitivity, 90% specificity, 87% positive predictive value, and 95% negative predictive value.

P022

BEDSIDE PORTABLE ULTRASONOGRAPHY IS COMPARED TO CONVENTIONAL ROENTGENOGRAPHY IN EARLY DIAGNOSIS OF PULMONARY PATHOLOGY IN ICU

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Objective: To evaluate early, easy and without risk of radiation

exposure ,to detect lung causes for respiratory failure. To start early intervention and therapy to provide better health status in critically ill patients.

Methods and Materials: Equipment; MICRO MAXX with 2-5 MHz convex and 7-12 MHz linear probes now available in our institute. Total cases : 60, group A (30 cases) examined by ultrasound, group B (30 cases) examined by radiography. Patient position; Examine the patients in supine or semi prone position. The chest divided into three zones .Anteriorly between sternum and anterior axillary line, laterally between anterior and posterior axillary lines, posteriorly between posterior axillary line and spine. Transducer is in (atleast two directions) a cranio-caudal direction and horizontal direction with the probe marker pointing cranially and medially, and probe view between two rib spaces The optimal ICU chest radiograph is obtained in antero-posterior (AP) view at a target to film distance of 40 inches is used in the supine patient. Due to the decreased mobility of patient in the ICU, chest film are often taken while the patient is supine.

Results: Chest ultra sound shows significant p value [>0.01]. In pulmonary pathological conditions, the characterisation of lesions, follow-up of cases and any further required interventions were better seen in lung ultrasonography than in chest X-ray.

Conclusion: In icu patients usg is the better modality compared to radiography for diagnosing most of the pulmonary conditions and for follow-up in ICU patients.

Neurology: P023 - 035

P023

ROLE OF THERAPEUTIC HYPOOTHERMIA IN NEUROLOGICAL OUTCOME OF CARDIAC ARREST PATIENTS

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Objectives: Role of therapeutic hypothermia in VT, VF cardiac arrest is well established. The Indian data is limited on this aspect. This study was done to understand the efficacy of therapeutic hypothermia in cardiac arrest patients in Indian scenario.

Material and methods: This was a single centre prospective observational study conducted over 6 months from May to October 2012. Inclusion criteria were witnessed cardiac arrest due to any cause, return of spontaneous circulation (ROSC) within 30 minutes of CPR and persistent coma. Rectal temperature was kept between 32-34°C for 24 hours. Hypothermia was done by applying cooling blanket, ice packs, gastric lavage by cold saline and IV fluid at temp of 4°C. Rewarming was done @0.5 deg C/hr. Neurological outcome was noted after 72 hours by Glasgow coma scale (GCS), focal neurological deficit, presence or absence of seizures and EEG if GCS <7 .

Results: 19 Patients were included. Mean age was 62.5 years. 10 patients had VF/pulseless VT and 9 patients had asystole/PEA. The mean time from arrest to ROSC was 20.3 minutes. 9 patients survived more than 72 hours. Out of these 9 patients 4 patients had complete neurological recovery (higher mental function normal), 2 patients had GCS 10-12 requiring prolonged mechanical

ventilation and weaning through tracheostomy and 3 remain comatose (GCS <7) with poor neurological outcome.

Conclusion: Further studies are needed in Indian context to validate its role and be part of standard protocol.

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P024

A CASE OF AMOEBIC LIVER ABSCESS WITH RARE METRONIDAZOLE TOXICITY

Rakesh Godara, Pradyut Bag, Rajat Aggarwal, Amit Varma

Introduction: Metronidazole induced cerebellar toxicity is rare and very few cases are reported worldwide. Hence we are reporting this case. Case presentation: 43 years male was admitted with amebic liver abscess and atrial fibrillation (AF). The abscess ruptured in the pleural and peritoneal cavity and patient subsequently went into multiorgan failure. Patient was given three weeks of metronidazole 750 milligrams three times a day but in spite of that the abscess cavity did not obliterate so metronidazole was continued for another two weeks. This time patient presented with slurring of speech and ataxia without focal motor and sensory deficit. Clinical diagnosis was made of embolic stroke in view of history of AF. MRI brain done which revealed bilateral symmetric areas of hyper intensity in dentate nuclei of cerebellum and dorsal pons on FLAIR, T2 W images. Review of literature suggests these findings are consistent with metronidazole toxicity. Total metronidazole intake was 73 grams over five weeks.

Conclusion: Patient had intermittent AF which was suspected etiology in our patient. Subsequently on reviewing radiological images diagnosis of metronidazole toxicity was made. Neurotoxicity should be suspected in patients with new onset cerebellar symptoms in presence of prolong treatment with metronidazole in high doses.

P025

LOWER LIMB DEEP VEIN THROMBOSIS IN HIGH RISK NEUROSURGICAL PATIENTS

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Objective: To assess the incidence of early lower limb deep vein thrombosis (DVT) in neurosurgical patients at increased risk

Materials and methods: Neurosurgeons are reluctant to start anticoagulation in patients with acute head injury or in the early postoperative period. Most neurosurgical postoperative patients are usually mobile the day after surgery and at reduced risk of developing DVT. We therefore established criteria to identify patients who were at a higher risk of developing DVT, and evaluated them regularly for the first 5 days following surgery or trauma, reasoning that by this time even a conservative neurosurgeon would be willing to begin anticoagulation if necessary. The criteria used to identify these high risk patients were.

- Immobilization >12 hours - anesthesia or sedation and

ventilation ·

- Lower limb weakness < MRC grade 3
- Prone positioning
- Lower limb fracture or venous access

Doppler ultrasound imaging of the femoral veins was done on these patients on the first, third and fifth day after surgery or onset of immobilization. The imaging parameters observed were: complete compressibility of the femoral vein, flow with colour Doppler and flow augmentation on compressing the calf muscle. Abnormality of any of these parameters was considered as diagnostic of DVT.

Results: 138 patients were initially recruited of whom 29 were not included for analysis because 12 patients did not survive for the entire duration of the study period, screening was not appropriately done in 3 patients and 14 patients were initiated on DVT prophylaxis during the study period. Only one patient developed DVT on the 5th day of sedation and ventilation on the side of a femoral venous access. The study is ongoing.

Conclusion: Incidence of DVT in the first five days following surgery or trauma is low, and there is probably no need for prophylaxis during this period.

P026

BRAIN ABSCESS WITH SEPTIC SHOCK IN AN ADULT PATIENT OF UNREPAIRED TETRALOGY OF FALLOT – A CASE REPORT

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Introduction: Patients with Tetralogy of Fallot (TOF) who develop septicemia have poor outcome even in modern era. TOF patients presenting with brain abscess is uncommon in adult patients and hence the need to highlight the case.

Case: A 19 year male was admitted to our ICU with history of blister in left thigh for 15days, high grade fever and disorientation 1day prior to admission. He was diagnosed to have TOF 1 year back on medical management. Initial investigations revealed WBC count 17,000/cmm, serum procalcitonin 24.5, serum creatinine 2.3mg/dl, metabolic acidosis (BE -12.4), with normal urine examination and chest X-ray. CT scan of head showed evolving abscess in left frontal lobe. He was managed as per septic shock protocol with fluids and vasopressors. Antimicrobial therapy with Teicoplanin, Rifampicin and ceftriaxone was initiated. On next day he developed multiple eruptions all over the body, and his chest X-ray showed bilateral patchy opacities suggestive of ARDS. His sensorium also deteriorated with GCS of 7. His trachea was intubated and put on ventilator. Subsequently his vasopressor requirement increased and his metabolic acidosis worsened. Culture of skin lesion showed staphylococcus aureus (MRSA) which was sensitive to antibiotics given empirically. On third day he developed generalized seizures with renal failure and lactic acidosis. Thereafter he had Ventricular Fibrillation and expired.

Discussion: We isolated MRSA in this case with no recent hospitalization history. This reinforces the rising trend of community acquired MRSA in India. The case highlights rare presentation of adult patient with TOF who despite aggressive management have 15% mortality risk in brain abscess

P027

DIFFICULT TO WEAN – AN INTERESTING CASE OF BILATERAL DIAPHRAGMATIC PALSY

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A 65-years-old lady, known diabetic, hypertensive and multinodular goitre presented to tertiary care hospital with breathlessness. She was diagnosed to have acute NSTEMI with type 2 respiratory failure. She was treated with low molecular weight heparin, antiplatelets, and statins along with mechanical ventilation in ICU. Though she was symptomatically better and hemodynamically stable. She had three failed spontaneous breathing trials, each resulting in hypercapnea. She was referred to our hospital as weaning failure and need for further evaluation of the cause of respiratory failure. In view of persistent hypercapnea, we did further evaluation of hypercapnic failure. Ultrasound of the diaphragm showed minimal excursion of diaphragm while off the ventialtor and fluroscopy confirmed bilateral diaphragmatic palsy. CECT of the chest was done to rule out retrosternal goitre. tests for myasthenia were negative (RNS, neostigmine test and anti-AChR antibodies). MRI cervical spine was done to rule out compressive myelopathy. EMG was done to rule out motor neuron disease. NCV was done to rule out GBS. She was treated with acyclovir and methylprednisolone for idiopathic diaphragmatic palsy. She improved minimally and is weaned to a portable BIPAP ventialtor and requires IPAP of 10cm and EPAP of 4cm . She underwent 3 sittings of plasmapheresis in veiw of some improvement after steroid therapy. She is currently ambulant off oxygen and gradually being weaned from the portable ventilator. This is one of the rare cases of idiopathic diaphragmatic palsy weaned successfully.

P028

DIABETIC KETOACIDOSIS INDUCED CEREBRAL INFARCT: A MISSING LINK IN PATHOGENESIS OF NEUROLOGIC MANIFESTATIONS OF ACUTE PANCREATITIS.

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Diabetic ketoacidosis (DKA) is a known complication of acute pancreatitis (AP). On the other hand, ketosis can induce AP. Ketoacidosis along with AP induces an inflammatory cascade by oxidative stress and dehydration. Both of these factors lead to stasis of blood and endothelial damage which makes these patients prothrombotic. We report a case of DKA precipitated by AP. This patient developed watershed infarct in brain during her course of disease which was possibly attributed to DKA. DKA is a known precipitating cause for thrombosis. The pathogenetic mechanism explained for this prothrmobotic state involves a proinflammatory state caused by DKA. Ketosis leads to hypercoagulability, stasis and endothelial injury (Virchow's triad). More over the dehydration caused by DKA makes these patients prone to thrombotic stroke which more so present in the watershed region of brain. We emphasize that, DKA induced by AP may produce a

state of dehydration and lead to a prothrombotic state. When patients with AP induced DKA present with neurologic signs then, an occult thrombotic episode may be the missing link in the pathologic cascade.

P029

PARAPLEGIA - A POSSIBLE SEQUALAE OF INFECTED VENOUS ACCESS SITE

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Hospital practices of present day mostly require a peripheral venous access for a patient. Most times improper handling of these access sites results in thrombophlebitis and a reason for febrile spikes. We had an interesting case of a young manual laborer treated elsewhere for over a week for fever, presenting to us with painful swelling of the dorsum of left hand, suggestive of thrombophlebitis. Initial investigations suggested neutrophilic leukocytosis and biochemistry was normal. He continued to have high grade fever and on third day developed severe neck tenderness and radicular pain. The initial blood culture showed *Staphylococcus aureus* and he developed acute quadriparesis. The MR imaging of neck showed an epidural abscess in the mid cervical level and which was immediately drained and decompressed. With neuro-rehabilitation he regained his upper limb functions and continues to have paraplegia and sphincteric disturbances. We believe the source of infection to be from the peripheral venous access site and recommend proper care of these access points to prevent catastrophes of this magnitude.

P030

ADEM

Ronak Nagoria, Rajib Paul, Jsrinivas Zaki Ahmed, Ashish Patil

37yrs old Male patient presented to ER with H/O ongoing fever since 10days. Associated with vomiting, loss of appetite, dysphagia (6days), B/L parotid swelling (8days), urinary retention (4days) and B/L lower limb weakness (3days). He was diagnosed as Mumps with Transverse Myelitis. On admission, he was conscious, coherent and oriented, abdomen was tense and distended, and bowel sound was sluggish. patient GCS was 15/15. Both Lower limbs power was 0/5 and Upper limbs was 3-4/5 (Rt>Lt). CSF report showedm Increased Protein and WBC , Decreased Glucose.MRI Brain suggestive of Multiple hyper intense lesions involving Lt Basal Occipital Region, Post. Temporal Regions on both side (L>R), C-Spine Suggestive of Multiple Demyelinating Plaques of Cervical Cord. Anti-Aquaporin-4(AQP4) was Positive. VEP for both eyes was normal. In view of the new provisional diagnosis, NMO, Plasmapheresis was started. Repeat MRI showed Progressive demyelinating lesions. Weakness had progressed to right upper limb and neurologically worsening. Intermittent episodes of Hypotension, Bradycardia noted . He had developed Lt Basal Crepts. He was Irritable and his sensorium was altered .Patient developed HAP Breathing pattern was bad with decrease in oxygen saturations and in view of sudden respiratory arrest, elective endotracheal intubation done. Third session of Plasmapheresis was with held due to hypotensive episodes.

Mumps Antibodies were positive. Brain biopsy was done which showed demyelination with preserved axons. A diagnosis of POST MUMPS ADEM was confirmed. Patient started on Ivig Patient weaned off ventilator with still persisting neurological deficits

P31

NEUROMUSCULAR WEAKNESS IN THE ICU: AN ETIOLOGICAL CONUNDRUM

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Case Description: A 60-year female was admitted for a revision sleeve gastrectomy. On post operative day three, she developed fever and abdominal pain. A CT abdomen revealed free fluid and an emergent laparotomy revealed fecal peritonitis secondary to bowel perforation. In the ICU she was in septic shock requiring noradrenaline, ventilated on control mode and neurological exam with no sensory or motor deficits. Piperacillin-Tazobactam was started which was escalated to colistin at a loading dose of 8 million IU. On day 3 there was a decline in her GCS to 4T (E3M1) despite cessation of sedation. Neurological examination revealed a horizontal nystagmus and flaccid quadriparesis with absent deep tendon reflexes. She had not received any muscle relaxants or steroids. Enterobacter bacteremia was identified and antibiotics were deescalated. CSF examination, MRI of the brain and spine were normal. Nerve conduction study (NCS) revealed a predominantly motor radiculoneuropathy with prominent demyelinating features, highly suggestive of Guillain-Barre Syndrome. Neurologist recommended initiating immunoglobulin at 30 gram per day over 5 days. There was an improvement in muscle strength to 2/5 upper limbs and 2/5 lower limbs, with more proximal involvement, over the next 72 hours. Due to persistent muscle weakness, a tracheostomy was performed. The patient is currently off ventilatory support and with adequate physiotherapy motor deficits continue to improve.

Discussion: The presentation in our patient was very atypical for GBS or CIN, given the short duration of ICU stay and the acuity of onset and recovery. We hypothesized that since GBS as a diagnosis was entertained early and IVIG therapy instituted without any delay, the disease progression may have been halted prematurely. There have been reported a broad spectrum of neuro toxicities upon Colistin use, at the current recommended dosages, which may have attributed to our patients neurological manifestations.

P032

CLINICAL PROFILE AND OUTCOME OF JAPANESE ENCEPHALITIS CASES ADMITTED AT ICU FROM THE MONTH OF JUNE 2012 TO NOVEMBER 2012

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Objective: JE cases have been reported from various parts of India . Our objective is to report JE cases, their clinical profile and outcome after ICU stay and days of hospital stay from our hospital. M&M - A prospective study was done for patients admitted in ICU from June to Nov 12 with acute onset febrile encephalopathy. They underwent blood test ,CSF routine examination and ELISA for JE IgM, CT brain or MRI . Patients whose CSF was positive for

JE IgM were included in the study.

Results: 30 out of 68 cases of acute febrile encephalopathy tested positive for JE IgM. Maximum patients were in age group 21-59 years including one pregnant women .none were less than 2 years of age . All presented with fever and altered consciousness . 12 (40%) had convulsions , neck rigidity in 26 (86.8%) 14 (46.6%) had headache, generalise hypertonia was present in 4(13.3%) and 8 (26.6%) had focal deficits. Extrapramidal features were seen in 8 (26.6%), 18 (30%) had co-morbidities. 5 patients had associated periinfectious morbidity. ICU stay ranged from 3to53 days . hospital stay ranged from 5 to 60 days .GSC score was 11-15 in 66.66% on admission. 21 out of 30JE cases recovered. MRI showed Thalamic hyperintensity. 1 case developed HIE , 7 patients had a fallout during treatment while 2 patients expired.

Conclusion: Most cases were adult. Poor prognostic marker observed by us were recurrent seizures on admission, deep coma (GCS<8) before initiation of therapy. Early hospitalisation and ICU treatment can reduce the mortality rate.

P033

CASE SERIES- KETAMINE INFUSION FOR EARLY CONTROL OF SEIZURES IN STATUS EPILEPTICUS

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Patients with status epilepticus are a challenge to manage for intensivist & neurologist alike, more so in pediatric & adolescent age group apart from the perceived significant neurological defect & neuro developmental delay in milestones which is a significant cause of concern for the parents. it poses major challenges for intensivist in terms of control of seizures , infections, prolonged ICU stay, financial implications & prognostication of outcome. Hence it is pertinent that we achieve early & aggressive control of seizures in cases of status epilepticus when multiple anti-seizure medications are already in use. ketamine was traditionally considered epileptogenic. It is now an emerging modality of treatment for control of seizures. We present a case series of three patients in whom we attained early & satisfactory control of seizure activity as documented by continuous EEG monitoring by initiating Ketamine infusion. All patients had an average ICU stay of 1-1 1/2 months. Two patients were discharged at the end of two months. one patients succumbed to sepsis. We have also followed up the developmental milestones of the discharged patients.

P034

THE POSTERIOR REVERSIBLE ENCEPHALOPATHY SYNDROME (PRES) IN YOUNG HEALTHY MALE

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Case: A 20-year male admitted to the hospital with history of headache & few days of fever. The clinical examination & investigations were unremarkable. The patient had sudden onset blurred vision with an episode of generalized tonic clonic seizure. There was sudden rise in blood pressure few hours prior to this episode. The MRI brain showed bilateral symmetric vasogenic edema mainly involving the subcortical white matter in the parieto-occipital, posterior temporal, and posterior frontal lobes.

These findings were consistent with Posterior reversible encephalopathy syndrome. The patient was managed with antihypertensive & antiepileptic drugs. The repeat MRI was done after 2 months, which showed resolution of all earlier changes.

Conclusion: The posterior reversible encephalopathy syndrome (PRES) is an increasingly recognised disorder. Most patients have several symptoms; seizures are the most frequent, often multiple or status epilepticus. A combination of seizures, visual disturbance and/or headache, in particular, should lead to an early brain MRI to reveal the typical pattern of bilateral hyperintensities on fluid attenuated inversion recovery imaging, predominantly in the parieto-occipital region. There seem to be many possible triggers, including abrupt arterial hypertension, impaired renal function, pregnancy, immunosuppressive therapies and various inflammatory conditions. The clinical outcome is excellent, with recovery within a few days, while the MRI abnormalities resolve much more slowly. Little is known about the best management. Seizures do not normally progress to chronic epilepsy so antiepileptic drugs should be discontinued after about 3 months

P035

DRAIN ASSOCIATED CSF INFECTIONS IN THE NEURO INTENSIVE CARE UNIT ARE REDUCED BY COST EFFECTIVE AND SIMPLE PROTOCOL FOR SAMPLING: A PROSPECTIVE STUDY.

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AIIMS, Bhubaneswar

Objective: To establish if simple inexpensive interventions can reduce the incidence of such infections compared to a historical cohort at the same institution. **Methods:** A retrospective review of all adult patients undergoing an external CSF diversion procedure at the 20 bedded neurointensive care unit of a single centre was carried out to determine the historical rate of infection and associated risk factors. Following an institutional protocol or "care bundle" which included standards on drain insertion, care, sampling, definitions of infection and antibiotic prescribing a prospective study was carried out over a period of one year to observe whether infection rates had changed and which factors continued to predict drain related infections.

Nutrition: P036 - P037

P036

WHY IS IT NOT POSSIBLE TO ACHIEVE EARLY ENTERAL NUTRITION ALWAYS?

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Objective: Evidence in literature suggests that enteral nutrition should be commenced in all critically ill patients within 24-48 hours as far as possible. We aimed to assess the reasons in process compliance which act as obstacles in achieving this goal. **Methods:** This study was conducted in a 33 bedded medical surgical ICU from January 2010 to December 2010. We prospectively collected the data of all patients admitted during the study period .In our study EEN was defined as enteral nutrition commenced within 24 hours after ICU admission.

Results: 1880 patients were admitted during this period of whom

645 were eligible to receive EEN. In 532 patients(82.48%), EEN was achieved within 24 hours. The most common causes of withholding EEN were : 1) Nil By Mouth after surgery (surgeon's discretion)- 73 patients(64.60.%) , high gastric residual volumes – 17 patients(15.04%) , altered mental status (risk of aspiration)- 14 patients (12.38%), prescription for nutrition overlooked- 9 patients (7.98%).

Conclusion: It is possible to achieve early enteral nutrition in a majority of critically ill patients. Prolonged fasting after surgery seems to be the biggest obstacle in achieving more compliance. Nursing education about gastric residual volume is needed to stop nutrition may further enhance compliance.

P037

MALNUTRITION SCREENING AND OUTCOMES IN CRITICALLY ILL GERIATRIC PATIENTS - A PROSPECTIVE STUDY.

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Objective: Premorbid malnutrition is associated with increased mortality in critically ill geriatric patients. There is little data on the use of nutrition screening tools in this group in our country. We compared two commonly used malnutrition screening tools- the Malnutrition Universal Screening Tool (MUST) and the Geriatric Nutrition Risk Index (GNRI) in predicting the outcome of critically ill geriatric patients over a period of 1 year.

Materials: Prospective cohort study of 98 consecutive patients aged 65 and older admitted over 2 years to the ICU of a University hospital. A comprehensive medical, functional, nutritional, and social assessment was undertaken for each patient upon admission to the ICU. Follow up phone calls were made to assess patients' condition at 6 and 12 months interval post discharge.

Results: 98 patients (57% male) of a mean age of 76.1 years were analysed. The prevalence of severe malnutrition at the time of admission to the ICU was 47% (46/98). Mortality at discharge, 6 months and 12 months post discharge was 30%, 49% and 53% . At 1 year follow up, 74% of survivors had a Katz index 6 i.e a high degree of independence in performing daily activities. 4 patients were lost to follow. Both MUST and GNRI significantly predicted death (log rank test, $p = 0.022$ and 0.021 respectively) at a median follow up of 1 year. MUST and GNRI scoring were possible in 100% and 77% (76/98) respectively.

Conclusion: There is a high prevalence of severe malnutrition among geriatric patients admitted to our ICU. The MUST score (with greater applicability) and the GNRI are both able to predict increased mortality in this group. Further work is required to prepare mortality prediction models in this group of patients given the socio economic implications of critical illness of geriatric patients.

Others: P038 - P059

P38

A CASE REPORT: THE VAGARIES OF SODIUM

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We report a case of a 40 year old gentleman presenting our

medium sized urban Emergency Department in Western Australia at 8 pm, with a history of bilateral arm pain. He has been seeing his GP with this problem and he was given an injection which he says was for pain but with no relief. Clinical examination did not reveal anything concerning and he was discharged. He returned to the department 9 hours later brought in by his friends, when he had a seizure while having a few drinks. He was found to have a serum Sodium of 110. His seizure was controlled with benzodiazepines and he was given 0.9% saline iv slowly. His Na reduced further to 106 when he was treated with 3% hypertonic saline and intubated for airway protection and admitted to ICU. He went on to develop a raised CK suggesting hyponatremia induced rhabdomyolysis.

Conclusion: This case highlights the diagnostic difficulty early in hyponatremia due to the vague symptoms. It also demonstrates the use of appropriate concentration of Saline in its treatment and the awareness of clinicians to the muscle injury caused by hyponatremia.

P039

ROCURONIUM BROMIDE VERSUS ATRACURIUM: COMPARISON OF ONSET, INTUBATING CONDITIONS AND DURATION OF ACTION.

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Background and goals of study: Rocuronium bromide is a newer muscle relaxant with a quick onset of action. We compared Rocuronium (0.6mg/kg) and Atracurium (0.5mg/kg) for observing their effects on onset, intubating conditions and duration of action. Methods: We have studied 60 patients of ASA grade I & II of either sex between age group of 18 to 60 years having weight between 40 to 60 kg and Mallampati I & II undergoing planned surgery under general anesthesia. The patients were divided into two groups. Premedication & anesthesia techniques for all the groups were the same with difference in the neuro-muscular blocking agent given for intubation.

Results: Mean onset time with Rocuronium was 70 ± 10 seconds and with Atracurium 100 ± 15 seconds which was statistically highly significant ($P < 0.05$). Mean duration of action with Rocuronium was 35 ± 10 minutes and with Atracurium was 45 ± 5 minutes which was statistically comparable ($P < 0.05$). Intubating conditions was accomplished in < 90 seconds in all patients receiving Rocuronium but in only 10 patients of 30 patients receiving Atracurium with fair intubating conditions. There were no side effects seen in any patients of either group.

Conclusion: Rocuronium compared to Atracurium, provided excellent intubating condition within 90 seconds of drug administration. It is also a better alternative to Atracurium for tracheal intubation in conditions where suxamethonium is contraindicated and in clinical situations where Rapid Sequence Induction technique is needed.

P040

ITS NEVER TOO LATE TO CHECK!

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Ethylene glycol poisoning is a medical emergency that presents challenges both for clinicians and clinical laboratories. Untreated,

it may cause morbidly or death, but effective therapy is available, if administered timely. However, the diagnosis of ethylene glycol poisoning is not always straightforward. Thus, measurement of serum ethylene glycol, and ideally glycolic acid, its major toxic metabolite in serum, is definitive.

Intoxication with ethylene glycol can cause neurological and cardiopulmonary symptoms, metabolic acidosis and acute renal failure. Therapeutic options include reversal of metabolic acidosis, inhibition of alcohol dehydrogenase and early hemodialysis

Case Report: A 42 year old male was admitted with low GCS, high CK, and severe acidosis (lactate 2.9, bicarbonate 8, PH 7.1, anion gap was 16) in early morning hours from the local park. He had a background of fit disorder but was not on any regular medication. There was neutrophilic leucocytosis but CRP was 8. The serum alcohol was <10 mg/dl and the toxicology screen confirmed his usual medications (benzodiazepene and codeine).

Due to low GCS and severe acidosis he was intubated and the CT head was done to exclude any intracranial event. He was admitted to ITU considering him to be post ictal but his acidosis failed to shift and he developed acute renal failure. There was a possibility of tricyclic antidepressant overdose but he had no access to it.

After 2 days of deliberation a blood toxicology screen specifically requested showed a Ethylene glycol level of 24 mg/L. It was a surprise as there was no significant Osmolar gap (14)/ anion gap and he was a working class family man and a tax paying citizen. He had a significant memory lapse to be able to put things in order. He was started on absolute alcohol infusion and developed massive polyuria (? recovering ATN / alcohol induced polyuria). His kidney function and mental state recovered slowly and he left the ITU back to his premorbid state. His urine was too dilute for an accurate oxalate analysis but his 24 hour Urinary Ca was normal.

Discussion: Ethylene glycol's clinical signs are non-specific, it is important for the medical community to consider these toxicities given that early treatment prevents death. The hallmark of toxic alcohol poisoning is a combination of a high anion gap metabolic acidosis and osmolar gap. However, the increase in serum osmolar gap and metabolic acidosis can occur either together or alone depending on several factors, including baseline serum osmolar gap, molecular weight of the alcohol, and stage of metabolism of the alcohol².

Most patients have a decreased level of consciousness making an adequate history unobtainable. One must rely on laboratory data for clues in making a diagnosis of intoxication.

Delayed treatment leads to serious morbidity and high mortality (up to 50%), early diagnosis is essential for preventing harmful consequences and even death. Diagnosis is based on clinical suspicion and laboratory findings. Given that most hospitals do not have the means to measure the specific toxin in plasma, osmolar gap however small usually serves as a rapid diagnostic test for detecting the presence of osmotically active substances like ethylene glycol in plasma¹.

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P41

PSEUDO-ANEURYSM OF PROFONDA FEMORIS ARTERY; RARE COMPLICATION OF A COMMON ICU PROCEDURE

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Surgeons and Orthopaedicians, encounter Pseudo -aneurysms of femoral artery as a post-operative complication. The advancements in critical care medicine have made frequent blood sampling a necessity. There is an increasing tendency among training doctors to obtain femoral blood samples, increasing the risk of aneurysms or thrombosis in adjacent vasculature. We came across a 65 year old man referred with renal impairment; who had a tender swelling in the right groin, which according to him developed after blood sampling at the previous hospital. The colour Doppler revealed a pseudo-aneurysm with the jet arising from the profunda femoris artery. The pseudo aneurysm, also demonstrable on CECT imaging, was repaired by vascular reconstruction. There are many reports of femoral arterial aneurysm in surgical literature but one arising from profunda femoris artery is rare. We recommend the femoral sampling to be done with almost care when indicated and only under supervision.

P042

MUSCARINIC TOXICITY AMONG FAMILY MEMBERS AFTER CONSUMPTION OF POISONOUS MUSHROOMS.

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Thousands of mushroom species have been identified, among which only few are considered to be edible. Mushrooms are commercially cultivated world over and are considered to be safe for human consumption. Rarely few people develop allergies to these edible mushrooms. Mushroom hunting has emerged as an adventure and recreational activity in recent years. The wild forms of mushrooms are often poisonous and may mimic the edible ones in appearance leading to mistaken harvesting and consumption. In literature systemic toxic syndromes associated with poisonous mushroom intake have been described. We report an unusual instance of four members of a family presenting with muscarinic manifestations after consuming poisonous mushrooms. by mistaken identity. They consumed Clitocybe species of mushroom by mistaken identity, which resulted in muscarinic toxicity. Three of them required atropine and intensive monitoring till reversal of symptoms, whereas the fourth person was discharged after observation for few hours. Patients with muscarinic mushroom toxicity usually have early onset of symptoms; respond well to atropine and supportive care.

P043

IMPLEMENTING A PERFORMANCE IMPROVEMENT STRATEGY TO IMPROVE HAND HYGIENE

COMPLIANCE IN THE ICU

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Aim: To identify whether a multifaceted strategy could increase the compliance of hand hygiene.

Materials and Methods: A pre- post test research was conducted over 18 months in kasturba hospital. The following tasks were employed including JCI – performance improvement (Plan, do, check, act) framework and WHO hand hygiene observation form and 5 moments for hand hygiene, posters, education video were implemented after baseline data collection. The compliance rate was calculated to compare the compliance rate between the pre and post – intervention periods.

Results: After providing multifaceted strategy the compliance rates increased from 52% to 72% Stratified by profession : □ Physicians (54% to 70%) □ Nurses (50% to 74%) □ Therapists (52% to 69%) □ Auxiliary staff (55% to 65%) WHO five moments: □ Before touching a patient (54% to 58%) □ Before aseptic procedure (60% to 85%) □ After body fluid exposure (64% to 89%) □ After touching a patient (65% to 72%) □ After touching patient surroundings (37% to 60%)

Conclusions: The findings suggest that a multifaceted strategy could improve the compliance of hand hygiene in the ICU. Combined focus interventions may further facilitate an increase in hand hygiene compliance and lead to successful reduction in Hospital acquired infections.

P044

EFFECTS OF CUMULATIVE FLUID BALANCE ON MECHANICAL VENTILATION AND ICU LENGTH OF STAY IN ISOLATED CHEST AND OR TRAUMATIC BRAIN INJURY PATIENTS.

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We present retrospective observation of effects of cumulative fluid balance on chest trauma and traumatic brain injury patients on MV days and ICU length of stay.

The primary aim of our study is to find that fluid over load is associated with increased length of ventilator days? The secondary aim is to find association of fluid on length of ICU and hospital stay?

After exclusion criteria, only 33 patients out of 50 patients have been included. Severity of injury is calculated with Revised Trauma Score. All patient have sedation with RASS sedation score and sedated with midazolam and fentanyl. Cumulative fluid balance observed at Day 2 and 7 days after ICU admission. It was co related with total days of mechanical ventilation and ICU length and hospital of stay.

Results:

GROUP	A (RTS =< 6.66)	B (RTS > 6.66)	P VALUE
D2 BALANCE	5719 +/- 2940	5318 +/- 3134	0.4779
D7 BALANCE	10615 +/- 4534	8090 +/- 5556	0.8725
MV DAYS	8.58 +/- 5.83	8.76 +/- 4.28	0.3779
ICU LOS	12.83 +/- 4.28	11.92 +/- 4.85	0.5384
HOS LOS	25 +/- 6.94	30 +/- 11.32	0.7883

Conclusion: Trauma patients with isolated traumatic brain injury or chest injury like lung contusion who did not went any surgical intervention, cumulative fluid balance at D2 and D7, was not associated with significant length of mechanical ventilation, ICU and hospital length of stay.

P45

THREE CASES OF BURKHOLDERIA PSEUDOMALLEI BACTEREMIA

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Introduction: Burkholderia Psedomallei is a gm –ve aerobic bacilli that causes melioidosis. It is a soil saprophyte, present in stagnant water & infection is via skin through abrasion or by inhalation. Documented reports of melioidosis from india have been few and sporadic, the majority is being from south india. It is endemic in South-east asia. If untreated septicemic form of melioidosis has a mortality rate of >90%, with antibiotics it is 10% in uncomplicated cases & 80% for cases with bacteremia & severe sepsis.

Case Presentation: All three cases presented in our ED with short duration febrile illness & joint pain. They were from same district (Nagaon, Assam) & had H/O contact with stagnant water in paddy field. One of them was a diabetic. Blood C/S revealed Burkholderia Psedomallei with similar sensitivity pattern of antibiotics. One of the patient developed sepsis with ARDS & was on mechanical ventilator support. All 3-patients improved & discharged.

Objective: Cases of Burkholderia Psedomallei from north-east india have been reported from Tripura (2) & Assam (1) were diagnosed outside North-east.

These were the few cases reported from north east. The infection is underdiagnosed in India, probably due to a low index of suspicion among the clinicians and the clinical microbiologists.

P046

CRITICAL CARE REHABILITATION OF A PATIENT WITH RESPIRATORY FAILURE DUE TO BILATERAL DIAPHRAGMATIC PARALYSIS

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Critical illness polyneuropathy is associated with increased ICU stay leading to severe deconditioning which poses a major challenge for weaning. Critical care rehabilitation is a key component to manage the patient and thereby reducing deconditioning. Objective: To describe the rehabilitation and outcome of a patient admitted with respiratory failure due to bilateral diaphragmatic paralysis with prolonged ICU admission.

Materials and Method: A 65 year old female with respiratory failure due to diaphragmatic palsy who admitted to ICU with tracheostomy and on mechanical ventilator. On clinical evaluation with Chelsea Critical Care Physical Assessment Tool (CPAx) the score was 22/50. In addition to medical care, she was vigorously treated with bronchial hygiene therapy, incentive spirometry through the artificial airway and facilitation of diaphragm and graded early mobilization while the patient was on respiratory support (IPAP = 18 cm H₂O, EPAP = 5cm H₂O, O₂ flow = 6L/min

and Mandatory breaths = 20/min). She responded favorably to treatment and gradual weaning from mechanical ventilation was initiated. Results: We observed gradual improvement in clinical findings, objectively and progressive weaning from Mechanical ventilator. Her CPAP score improved to 32/50. She currently requires BiPAP support but is able to tolerate intermittent periods without support. No adverse effects were observed throughout the rehabilitation programme.

Conclusion/clinical implication: In the present study, individualized critical care rehabilitation (bronchial hygiene therapy, graded early mobilization) is found to be effective in weaning.

P047

DENGUE FEVER-AN OBSERVATIONAL STUDY-BEDSIDE MARKERS

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Aim: To study the correlation of clinical and laboratory parameters in dengue fever: Relative bradycardia, leucopenia, APTT prolongation, elevated AST, Gallbladder wall edema, polyserositis and bedside tourniquet test.

Material and methods: All patients admitted to AMCU, Yashoda Hospital, Hyderabad with suspected Dengue fever were initially registered. Only those patients who were serologically (IgM)/NS1 positive for Dengue plus temperature > 101°F were included in the study (total of 100 patients).

Exclusion criteria: No laboratory confirmation, age < 18 yrs or > 60 yrs, pre-existing substantial heart or lung disease, on drugs like beta-blockers, beta-agonists, calcium channel blockers or pacemakers.

Peak temperatures were recorded within 24 hrs of admission with simultaneous pulse measurement. Relative bradycardia was defined as absence of an expected increase in the heart rate with increasing temperature. Tourniquet test was performed on admission. The standard sphygmomanometer cuff was used and considered positive when 20 or > petechiae were observed in 2.5 cm square area.

Complete blood count, liver function test, renal function test, USG abdomen and CXR were carried out.

Leucopenia was defined as total white blood cell count of < 4000/cubic mm. APTT prolongation was defined as > 20% than control. AST was taken to be elevated if > 60 IU/L. Presence of GB wall edema & polyserositis were noted

Results: Relative bradycardia was seen in 42% of cases. Tourniquet test was positive in 40% cases. Leucopenia in 57%. APTT prolongation in 69%, these patients had more bleeding symptoms. AST was elevated in 76% cases. Gallbladder wall edema seen in 87% and polyserositis in 63%.

Conclusion: The clinical profile in acute febrile illness along with positive tourniquet test, leucopenia, relative bradycardia, elevated AST, Gallbladder wall edema & polyserositis showed a high likelihood of having dengue. APTT prolongation correlated with bleeding manifestations.

These parameters are easily obtainable and thus along with clinical correlation, could be used as bedside markers for dengue

fever given the current paucity of accurate, rapid diagnostic laboratory tests.

P048

UNEXPECTED EVENTS OCCURING DURING THE INTRAHOSPITAL TRANSPORT OF CRITICALLY ILL ICU PATIENTS.

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Objectives:

1. To observe the number and types of unexpected-events (UEs) occurring during intrahospital transport of critically ill ICU patients.
2. Interventions provided along with outcome.

Methods: This was a prospective observational study of 100 intrahospital critically ill ICU patients of our hospital transported for diagnostic purposes during April 2012-September 2012. The escorting Intensivist completed the data during transport. Major Unexpected-events (UEs) were defined as fall in saturation > 5% from baseline, BP variation > 20% from baseline, cardiac arrest, accidental extubation and arrhythmias. Minor UEs were Nasogastric tube and IV/Central-Line displacement. Miscellaneous UEs were oxygen probe/ECG lead displacement, Arterial line/IV line/ventilator tube tangling and transport related issues. The interventions provided and outcome were documented.

Results: A total of 100 patients were observed prospectively for UEs during intrahospital transfer of critically ill patients. The overall UEs observed were 109 among 64 patients. Among the UEs which occurred the maximum were miscellaneous causes 79 (72.47%) like oxygen probe 28 (25.68%) or ECG lead displacement 29 (26.60%), major events like fall in spo2 > 5% observed in 8 (7.33%) patients, BP variation > 20% from baseline in 14 (12.84%) patients, Altered mental status in 3 (2.75%) and arrhythmias in 3 (2.75%) patients. Among 64 (100%) patients with UEs, 3 (2.75%) patients with serious adverse events have been aborted from transport.

Conclusion: Unexpected-events (UEs) are commonly seen in critically ill ICU patients who are transported from one place to other, but these major unexpected adverse events can be reduced when critically ill patients are accompanied by Intensivist/ Medically qualified person during transport and following strict transport guidelines.

P049

CONTINUED MEDICAL EDUCATION- WHOSE MONEY IS IT ANYWAY?

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Introduction: Many accreditation and licensing authorities mandate the need for healthcare professionals' ongoing continued medical education (CME) activities. However, the costs involved in participating in these CME activities may be a major barrier. Institution and third party sponsored attendance by healthcare

professionals are increasingly common. In this study we seek to explore the proportion of CME activities paid for by self, institution and the pharmaceutical industry.

Materials and Methods: This is a retrospective audit of the data from 2009 conducted at an autonomous clinical training academy (TACT Academy for Clinical Training, Chennai, India). The details of the sponsor of each CME activity were collected from an existing database. Participants were subsequently categorized as self-sponsored, institution-sponsored or pharma industry-sponsored.

Results: In the year 2009, a total of 2235 participants attended 40 different CME activities at TACT. Of the total participants, 39.4% were self-sponsored, 40.2% were institution-sponsored and 20.3% were pharma industry sponsored. 47.8% participants attended courses that carried an international accreditation. For the courses that offer international accreditation, 63.3% were self-sponsored, 34.9% were institution-sponsored and 1.6% were pharma industry-sponsored. There were 126 participants (5.6%) who returned to TACT for another CME activity during the study period. Self-sponsored candidates were more likely to sponsor themselves again for subsequent CME activity compared to the other two groups.

Conclusion: Our study shows that majority of healthcare professionals attending CME activities are either self or institution sponsored. There is a greater inclination to self sponsor for activities with international accreditation.

P050

RAPID RESPONSE TEAM AT P.D. HINDUJA HOSPITAL: A ONE YEAR EXPERIENCE

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Rapid Response teams (RRT) are implemented to quickly review patients with deteriorating physiology and thus prevent further deterioration, cardiac arrest and death. Rapid response team is effectively functioning at our hospital since 2006.

Materials & Methods: Retrospective data analysis was done from 1st Jan 2011 to 31st Dec 2011. Indication for RRT team call and their management were evaluated. Either nurse or junior medical staff on duty could activate the RRT. The criteria for RRT activation were available in the form of a large poster displayed in each ward. Indications for calling RRT were any acute change in vital parameters (heart rate/respiratory rate/temperature/blood pressure), desaturation < 90% despite oxygen administration; acute change in neurological status or decrease urine output to < 30 ml in 3 hours.

Results: Total number of the RRT's - 94. Common indications for paging RRT : Tachypnoea 51(54%), change in neurological status 49(52%), desaturation 42(44%). Patient belonged to one of the 3 categories - Postoperative 20(21%), Medical 53(57%) or Oncology 21(22%). Place of management- 69 (73%) patients required ICU transfer, 23(24%) were managed in wards, 2 were made DNR while 1 required CPR. Intervention - 50 (53%) patients required medication (anti-epileptics, dextrose, anti-arrhythmics etc), 10(10%) patients required intubation, 3(3%) NIV while 10(10%) patients were started on ionotropes. 56 (60%) patients were

discharged while remaining 38(40%) expired.

Conclusion: Out of 94 patients only 1 patient required CPR. 60% patients were discharged while 40% expired.

P051

PROFILE OF SNAKE BITE ENVENOMATION IN RURAL BANGALORE PRESENTING TO A TERTIARY CARE HOSPITAL, RURAL BANGALORE, SOUTH INDIA.

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Objective: Snake bite is a common and frequently encountered devastating environmental and occupational disease. The present study was undertaken to study the clinical profile of all patients presenting with history of snake bite to a tertiary care hospital, Bangalore.

Material and Methods: All patients with history of snake bite that presented to our institution over a period of 1 year (Jan12-Dec12) were included in the present study. A detailed clinical history, examination and investigations were carried out. The patients with possible local or systemic envenomation were administered anti snake venom (ASV) as per high dose ASV protocol. Bite to needle time (BTNT) was established. Subsequently patients were followed up for any development of complications.

Results: 38 patients were eligible for the study. Male to female ratio was 6.33:1. Five (13.1%) patients did not present with any local or systemic envenomation. Of the patients who had complications, Nine (23.6%) had only local signs of envenomation, three (7.8%) had pure neurological signs, four(10.5%) had both haematological and neurological signs and the remaining nineteen (44.7%) had predominantly haematological signs. Seven (18.4%) patients were requiring mechanical ventilation with average 4.28 ventilator days. Mean ICU stay was 3.842(SD-2.843) days and mean total hospital stay was 5.236 (SD-3.935) days. Average BTNT was 138.15 (SD- 178.13) minutes. Average ASV received was 179.2 (SD-111.5) ml. Surgical debridement and faciotomy was done in six (15.7%) patients. Four (10.52%) developed acute renal failure, however only 1(2.6%) of them required haemodialysis. There was no mortality in our study. However, the comparison between BTNT Vs ICU days and BTNT Vs Hospital days was done by non parametric ANOVA and Dunn's multiple comparisons test showed significant correlation with P<0.001.

Conclusion: The early institution of ASV is beneficial in preventing complications and extended ICU /hospital stay. With escalated cost of health care, this has significant implications.

P052

THE USE OF CLOSED SUCTION SYSTEM OFFERS MANY ADVANTAGES IN NEURO ICU.

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Background: The extent of airborne environmental bacterial contamination which occurs following tracheal suction in patients undergoing intermittent positive pressure ventilation in the intensive therapy unit is minimized by using a closed system (Stericath) as compared to open system. Therefore the use of closed

multi-use tracheal suction systems in ventilated patients is increasingly popular as it also offers a number of potential physiological besides microbiological advantages.

Objective: Present study reports an explorative assessment on 200 NICU patients using stericath during their stay in ICU at HOPE neuro care, Ahmedabad.

Material & Methods: Multiparametric statistics was applied to assess variables e.g. Time of suction, tube length, vitals like temperature, pulse, Blood pressure (BP), Respiratory rate(RR), Oxygen saturation and GCS. The variables were further classified according to Age, sex, diagnosis and other complications especially nosocomial infection. Result: The explorative study revealed good correlation between vitals, GCS and nosocomial infections when classified according to age and sex.

Conclusion: The result of current survey may provide an insight into the usefulness of stericath in NICU.

P53

PATIENT PERCEPTION OF SLEEP QUALITY AND FACTORS CONTRIBUTING TO SLEEP DISRUPTION IN THE INTENSIVE CARE UNIT (ICU)

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Objective: Subjective and objective measures of quality indicate that the sleep of patients in the intensive care unit (ICU) is often disturbed. A number of potential sleep disrupters like medication, light, frequent care related activities exist in the ICU, with noise being the predominant. Sleep disruption can cause significant adverse consequences in critically ill patients, such as immune system compromise and respiratory abnormalities. The objectives of this study were to analyze sleep quality in patients admitted in ICU and determine the effects of environmental factors on sleep quality.

Methods: Patients admitted to ICU of our hospital in a two month period were screened for eligibility. They completed a questionnaire to rate their sleep quality and main sleep disruption factors within 24hrs of ICU admission and at ICU discharge.

Results: 50 patients (29 males & 21 females) completed the questionnaire. Perceived ICU sleep quality was significantly poorer than baseline sleep at home ($p=0.064$). Disruption from human interventions and diagnostic testing were perceived to be as disruptive to sleep as was environmental noise in ICU. There were no differences between the individual environmental factors in terms of their perceived degrees of ICU sleep disruption and no significant association on comparing disruptive activities on admission and at the time of discharge on sleep quality ($p=0.012$).

Conclusion: (1) Poor sleep quality and daytime sleepiness are problems common to all ICU patients (2) the environmental etiologies of sleep disruption in the ICU are multifactorial but medical interventions were perceived to be as disruptive as noise.

P054

EPIDURAL ROPIVACAINE WITH DEXMEDETOMIDINE AS AN ADJUVANT FOR CHEST INJURIES

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Introduction: Multiple rib fractures cause considerable pain that can seriously compromise respiratory mechanics. Ropivacaine is a local anaesthetic in combination with dexmedetomidine (alpha2-agonists) provides pain relief and sedation for a longer duration.

Objectives: To evaluate the efficacy and safety of dexmedetomidine along with isobaric ropivacaine in thoracic epidural for pain relief in chest injury patients admitted in I C U.

Material and Method: Fifteen Multiple rib fracture patient of age group 19 yrs to 50 yrs of either sex were selected for the study who were admitted in ICU. After taking informed written consent from patient randomly categorized in group A and group B. Group A has received injection 0.2% isobaric ropivacaine 10ml in thoracic epidural at T5-T7 level and Group B has received injection 0.2% isobaric ropivacaine 10 ml + dexmedetomidine 0.5µg/µg body weight in thoracic epidural at T5-T7 level.

Results: Demographic profile age, sex, weight was similar in each group there was no significant difference. The mean arterial pressure and heart rate was stabilized in group B as compared to group A. There was no breakthrough pain in group B. The oxygen saturation (SPO2) was similar in both groups. The VAS score was better controlled in group B (3.1 ± 1.2) and the Ramsay sedation score was 3.0 ± 1.1 in dexmedetomidine (group B).

Conclusion: Dexmedetomidine along with ropivacaine provide good quality of analgesia for longer duration without respiratory depression, along with arousable sedation and improved quality pulmonary functions with early rehabilitation.

Key words: Multiple rib fractures, Thoracic-Epidural analgesia, Ropivacaine, Dexmedetomidine

P055

DESCRIPTIVE STUDY ON PATIENTS WITH TRAUMA DUE TO ROAD TRAFFIC ACCIDENTS, ADMITTED IN A SURGICAL INTENSIVE CARE UNIT OF A TERTIARY HOSPITAL IN SOUTH INDIA

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Background and Objectives: Trauma is the leading cause of death worldwide. Data from the India subcontinent is sparse. This study was done to describe the incidence, patient profiles, mechanism, mortality and morbidity of Road Traffic Accident (RTA) associated trauma in an adult 13 bedded Intensive care Unit (ICU) of a tertiary care centre in India.

Materials and Methods: Retrospective descriptive study of all trauma patients admitted within the ICU between May 2011 and Feb 2012. Inclusion criteria: All patients admitted to the ICU within a week of the RTA. The incidence, demographic details, mode of Trauma, APACHE scores, Injury Severity Scores (ISS), Ventilator free days, duration ICU stay, Hospital stay and mortality were looked at from electronic medical records and charts.

Main results: During the Study period a total of 96 Trauma patients were admitted that fulfilled the inclusion criteria. Trauma related to RTA made up 15% of all admissions. Most common vehicle involved were 2 wheelers (46.3% of all trauma). Most

common injuries requiring ICU admission were injury to extremities (83.3%) and Abdomen (76%). Overall mortality was 21.8%. The highest mortality was seen with Head injuries (37.5%) and Chest injuries (35.7%). The mean Injury Severity Score (ISS) was 25.86 and mean APACHE score was 11.86. The mean number of days on ventilator was 4.28 days. The mean ICU stay was 5.43 days and mean Hospital stay was 14.6 days.

Conclusions: Morbidity and mortality of Trauma related to Road traffic accidents is high. Head and Chest injuries had worst outcomes. Further Prospective studies are needed from other centres in the Indian Subcontinent as reasons and mechanisms behind RTA's are different from the west. Strict Law enforcement and public education continues to be the need of the hour

P056

INTRAHOSPITAL TRANSPORT OF HIGH RISK ICU PATIENTS ON MANUAL VENTILATION: AN AUDIT FROM A UNIVERSITY HOSPITAL

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Objective: To know indications and incidence of adverse events during intrahospital transport of high risk ICU patients.

Material & Method: A prospective audit was done between 01, September 2012 to 30, November 2012 in 12 bedded ICU of department of critical care medicine from a university hospital. Transport of high risk patient (requiring ventilator support) was done on manual ventilation with Bain's circuit by trained registrar and accompanied by nurse. Vitals were monitored. Proforma include: demographic profile, vitals, IV infusions, ABG (same settings on ventilator before and after transport), indication and duration of transport and adverse events (high risk or serious adverse event).

Results: There were 32 intrahospital transports (21 patients); 12 (60%) requiring vasopressors. Mean SOFA score was 8.87. Indications: mainly diagnostic 29 (90%), [18 CT scan, 5 MRI, 3 USG or Doppler, 2 NCV study], followed by 5 (15%) for intervention [4 NJ tube placement, 1 CT guided intervention]. Median duration of transport was 60 min (30 - 180 min). Seven patients needed increment of sedation, while one muscle relaxant. After transport, mean heart rate and mean vasopressor requirement were increased significantly ($p=0.026$ and $p=0.04$ respectively); while systolic BP, PaO_2/FiO_2 ratio, PCO_2 did not differ significantly. Total adverse events were in 18 (56%) transport which were high risk [13 (39%) patient related and 6 (18%) equipment related]. Amongst patient related events 9 (28%) had CVS followed by respiratory in 5 (15.6%). Seven (21.8%) had hypotension, followed by 4 (12.5%) tachypnea, 3 (9%) tachycardia 2 (6%) hypertension, 1 (3%) bradycardia and 1 (3%) increased airway pressure. Among equipments: 4 (12.5%) monitor related, followed by 1 (3%) infusion pump, 1 (3%) elevator malfunction.

Conclusion: Intrahospital transports of ventilated patient are at high risk for adverse events including significant increment of vasopressor; while there is no significant impact on blood gases.

P057

ACUTE INTERMITTENT PORPHYRIA PRESENTING AS HYPERTENSIVE EMERGENCY WITH ACUTE FLACCID QUADRIPLEGIA

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Porphyrias are a group of metabolic disorders associated with enzyme defects in the heme synthetic pathway resulting in overproduction of porphyrins. Acute intermittent porphyria (AIP) is the most common type presenting with pain abdomen, vomiting, autonomic instability, convulsions and weakness of the limbs. Presentation as hypertensive emergency and acute flaccid quadriplegia is very rare. One such presentation in a young male is being described.

P058

CASE OF G6PD DEFICIENCY UNMASKED WITH ALUMINIUM PHOSPHIDE POISONING IN AN ELDERLY MAN

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Aluminium phosphide (ALP) poisoning and G6PD deficiencies are two commonly seen clinical presentations in northern India. However, haemolysis associated with ALP poisoning is very rare, reported previously in only two cases in the literature. Herein, we report a patient with ALP poisoning presenting with intravascular haemolysis secondary to G6PD deficiency. A 75 year old male, admitted with H/O ingestion of one tab of ALP with several episodes of profuse vomiting. He referred to our hospital after at least 6 hours of ingestion of tablet. On admission, he was fully conscious and coherent. He had sinus tachycardia with hypotension (90/60). His breath smelt of garlic. Initial ABG was pH-7.325, pCO_2 -23.6, pO_2 -86.5, HCO_3 -15.0, lactate-7.5. He was resuscitated with 0.9% NS (1500ML). Inj Magnesium sulphate 3gm iv and coconut oil every 4th hour was continued in ICU. On day 3, of admission, patient started passing dark colored urine with fall in hemoglobin (13.2-6.5 gm/dl), unconjugated hyperbilirubinemia and acute rise in LDH values (481gm/dl). Coagulation profile was normal. DCT and ICT showed no activity. Quantitative G6PD hormone levels were low. He improved clinically over next few days and was discharged after a psychiatric evaluation, family screening and appropriate advice regarding G6PD deficiency. ALP can cause haemolysis in persons with G6PD deficiency. ALP by itself can cause haemolysis and also secondary to metabolic acidosis related to hypotension, cardiogenic shock, renal failure, seizures and hepatotoxicity.

Conclusion: Although haemolysis is a rare presentation in ALP poisoning, detection of associated G6PD deficiency is imperative because of its attendant implications.

P059

COMPARISON BETWEEN TRANSDERMAL BUPRENORPHINE AND TRANSDERMAL FENTANYL FOR POST OPERATIVE PAIN RELIEF.

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Aims and Objective: To Compare the efficacy of sedation, analgesic effectiveness, haemodynamic stability and side effect of Buprenorphine Patch with Fentanyl patch in Post - Op High Dependency Unit.

Materials and Methods: A prospective randomized double blind study involving 50 adult patients undergoing major abdominal surgery for post op pain relief was conducted. The Patients were divided into 2 groups each having 25 patients (n=25). Group B received Buprenorphine patch 10 mg and group F received fentanyl patch of 25mcg respectively. The efficacy of sedation, analgesic effectiveness was assessed using Ramsay sedation scale and visual analogue score.

Results: Patient's assessment of their analgesia was significantly ($p < 0.05$) better in group B as compared with the patients in group F. Haemodynamic stability was comparable ($p > 0.05$) in both the groups. The frequency of nausea and vomiting was not significantly ($p > 0.05$) different in the two groups.

Conclusion: Buprenorphine patch provides better analgesia for longer duration without any sedation and side effect as compared to fentanyl patch.

Keywords: Buprenorphine patch, Fentanyl patch, analgesic effectiveness, sedation, side effects.

Pharmacology: P060 - P063

P060

MAGNESIUM IN CRITICALLY ILL PATIENTS

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Background: Hypomagnesaemia despite its importance is still an extremely large under diagnosed electrolyte abnormality in critically ill patients. Altered Magnesium levels are significant in critically ill patients especially due to the association with fatal complications like torsades-de-pointes and cardiac failure. This study was carried out in the Medical Intensive Care Unit of a major tertiary teaching hospital in Mumbai, India.

Aims and Objectives: Our primary aim was to determine the prevalence of abnormalities in the serum magnesium levels upon MICU admission. The secondary aim was to determine the association of serum magnesium levels with the following parameters: mortality, length of ICU stay, need for and length of ventilatory support, APACHE score and the other metabolic abnormalities.

Methodology: It was a prospective observational double blind study with 100 subjects from the MICU in the case arm and 50 subjects from the ward in the control arm.

Results: Normal range for serum magnesium is 1.7-2.4 mg/dL. Upon admission, serum magnesium levels among the 100 case subjects, were (mean 1.7 mg/dL), low/normal/high (45% vs 6% vs 49%); and among the 50 control subjects, were (mean 1.89 mg/dL) low/normal/high (6% vs 90% vs 4%). Larger proportions of hypomagnesaemia patients (out of 45) compared to

normomagnesaemia patients (out of 49), were associated with sepsis (35.5% vs 12.2%), diabetes (28.88% vs 10.20%), hypocalcaemia (88.89% vs 57.14%) and a higher mortality (44.44% vs 20.41%). Although the requirement of ventilatory support wasn't statistically significant, the duration of ventilatory support and overall length of ICU stay was significant.

Conclusion: We obtained a high prevalence of hypomagnesaemia and hypermagnesaemia in the critically ill patients. Hypomagnesaemia was associated with a higher mortality rate, prolonged duration of MICU stay, length of ventilatory support. It was also associated with sepsis, diabetes, hypocalcaemia, low albumin levels and a higher APACHE score.

P061

A CASE OF ACUTE RIGHT HEART SYNDROME - ROLE OF INHALED NITRIC OXIDE

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Objectives: We report the use of inhaled Nitric Oxide (NO) as a rescue treatment in patient with acute severe right heart dysfunction secondary to chronic pulmonary artery hypertension (PAH) decompensated by multifactorial causes. **Materials and methods:** Inhaled NO (10ppm) through nitric oxide blender (NOxBOX, Benfont Scientific Ltd. Kent, England) **Case and Results:** A 39 years old female, case of Chronic Kidney Disease with severe PAH secondary to chronic pulmonary thromboembolism, presented with history of worsening dyspnea and hypotension during hemodialysis. She was admitted on floor and planned for CAPD catheter insertion for regular CAPD. She developed severe hypotension and altered sensorium on initiation of her first CAPD session and was shifted to the ICU for further management. She was drowsy, dyspneic (RR= 35/m) and had hypotension (BP = 70/40 mmHg). Her neck veins were distended and had a loud P2. ABG revealed hypoxia, hypercarbia with mixed acidosis. She was electively intubated and ventilated. Her Echo revealed markedly dilated RV/RA/IVC; severe PAH; PASP=93mmHg; decreased RV function & reduced LV compliance. She was initially managed with high dose inotropes and vasopressors, antibiotics, heparin and hemodialysis (Day 1). Her PASP increased to 95 mmHg (Day 3) in spite of all measures. In view of her refractory PAH inhaled NO was started (Day 4). Her hemodynamics improved 12 hours after initiation of NO. Repeat ECHO revealed significant reduction in PA pressures with PASP measuring 73mmHg at 48 hrs & 63mmHg at 72 hours of NO initiation. Gradually her inotropes were weaned off and NO was withdrawn after 72 hours (Day 6). She was extubated and was shifted out of ICU after four days of NO initiation (ICU Day 7). **Discussion:** Inhaled NO preferentially vasodilates the pulmonary vasculature, reduces the right ventricular afterload without affecting systemic circulation hence rapidly improves the acute right heart syndrome.

P062

COMPARISON OF DEXMEDETOMEDINE vs. MIDAZOLAM FOR CONTROL OF AGITATION IN TRAUMATIC BRAIN INJURY (MILD TO MODERATE), IN

NONINTUBATED PATIENTS.

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Introduction: Agitation is common after Head Injury...Here we tried to compare the efficacy of the Inj. Dexmedetomidine vs. Inj. Midazolam in (mild to moderate) Head Injury agitated non intubated patient admitted in step-down ICU.

Method: After approval from ethical committee a prospective study was conducted from 1st jan.2012 to 31st oct.2012.15 pts having mild to moderate head injury (isolated head injury), who are agitated but does not require intubation were taken in each group randomly. Between age group of 16 -49.they were given inj dexmedetomidine or midazolam for the control of agitation for 24...to30 hrs

Exclusion criteria: Patient's having injury other than head injury, signs of blood loss, on admission who had smell of alcohol, Pt who had h/o convulsion before admission, Pt having any co morbid disease like HTN, DM.

Dose: Group A pts received inj.dexmedetomidine bolus 1µg/kg/min.& then infusion 0.2 to .7 µg/min infusion while group B pts received inj. Midazolam 0.2mg/kg bolus & then 0.02 to 0.1 mg/kg /hr for maitainance...

Results: The comparison between dexmedetomidine (group A) and Midaz (group B) was done using student t test. On admission RASS score in group A was mean 3.6 (SD ± 5.2) while in group B the RASS score was mean 3.4 (SD ± 0.52).The infusion rate was started on admission in group A with 0.7µg/kg/hr.While in group B 0.068mg/kg/hr.In group A RASS score of 0 achieved in 30 min with same infusion dose (0.7µg/kg/hr) while in group B midazolam group RASS score of 1 (mean) achieved in 45 min & RASS score of 0.5 (mean) achieved in 1 h.After that RASS score in group A almost remains stable while in group B RASS score was stable after 7 hrs,

The pulse rate was significantly low in group A after 30 min also systolic blood pressure was low in group A. The respiratory rate was stable in group A while in group B there was marginally decrease in respiratory rate after 6 hrs of infusion of midazolam. The GCS was almost same (remains stable) in group A, while in group B GCS has variation.

Conclusion: As dexmedetomidine was found to be a better drug in achieving target RASS early within 30 min of infusion in agitated/ restless Head Injury non intubated patient as compare to midazolam group. The GCS of these patients (group A) also remains stable, so the neurological assessment was better.

Further studies on a big sample size are required to strengthen the hypothesis.

P063

IMPACT OF MULTI-DISCIPLINARY HOSPITAL ROUNDS FOR PREVENTING DRUG-DRUG INTERACTIONS

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Background: The practice of medicine needs a significant change to improve the quality of healthcare. The topic of drug-drug interactions (DDIs) has received a great deal of recent attention

from the regulatory, scientific, and health care communities worldwide. It is no longer practical for physicians to rely on memory alone to avoid potential drug interactions. Precipitant drugs modify the object drug's absorption, distribution, metabolism, excretion, or actual clinical effect.

Objective: To study the impact of multi disciplinary rounds in preventing the occurrence of drug-drug interactions in the Intensive Care Unit. Materials and Methods: A patient-centric model of care that emphasizes safety and efficiency was initiated in the form of multi disciplinary rounds in the 38 bedded ICU of Saifee Hospital in Mumbai from September to December 2012. It was headed by the Intensivist accompanied by the Microbiologist, Nurse, Dietitian and Clinical Pharmacist enabling all members to offer individual expertise and contribute to patient care. Drug interactions were detected using e-tools and reference books. The interactions were classified according to the severity into contraindicated, serious (use alternative) and significant interactions (closely monitor).

Results: The study revealed an improved process and outcome. The total number of drug interactions in the month of September was 130 from data of 243 patients (53%), out of which 1 was contraindicated, 50 were serious and 79 were significant interactions. A significant decrease in the number of drug interactions was observed by December during which there were only 7 total number of interactions from data of 205 patients (3.4%) of which 1 was contraindicated, 4 were serious and 2 were significant interactions. Details will be presented.

Conclusion: Team-based healthcare is clearly an important part of healthcare system. In this the clinical pharmacist could play a major role in preventing drug interactions.

Renal: P064 - P067

P064

INCIDENCE AND PROGNOSTIC IMPLICATIONS OF ACUTE KIDNEY INJURY BASED ON THE RIFLE CRITERIA, AT THE TIME OF ADMISSION TO AN INDIAN INTENSIVE CARE UNIT

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Objective: To assess the ability of the RIFLE criteria to predict mortality in critically ill patients admitted in a medical ICU. Materials and Methods Retrospective cohort study in an 8 bed medical ICU of a tertiary care hospital over a period of 16 months. Data regarding patient demographics and ICU course including need for organ support and length of stay were recorded. We classified each patient according to their RIFLE class using admission creatinine values (no-AKI<1.5 x baseline, Risk>=1.5 x baseline creatinine, Injury>=2 x baseline or Failure>=3 x baseline). Qualitative data were analyzed using chi2 or Fisher Exact test as appropriate and quantitative data were analyzed using student's t-test. Inter and intra group comparison for quantitative data was done by one way ANOVA. Primary outcome measure was the ICU mortality which was compared in five groups of patients: no AKI, risk (R), injury (I), failure (F), and loss or end-stage (L/E). Results Data from 722 patients were

included, no AKI: 362 (50.1%), risk: 168 (22.9%), injury: 71 (9.8%), failure: 80 (11.1%) and loss or end-stage: 44 (6.1%). Patients were evenly matched with regards to age and sex. The ICU mortality was: no-AKI (7.5%), risk (15.8%), injury (25.4%), failure (38.8%) and L/E (20.5%). The need for renal support also varied according to RIFLE criteria: no-AKI (1.1%), risk (4.2%), injury (26.8%), failure (72.5%) and L/E (77.3%).

Conclusions: The RIFLE classification is a simple tool which can be used to assess and classify AKI on admission to ICU. Moreover, it can reliably be used to predict and prognosticate outcome and need for renal support in ICU patients.

P065

DOES SERUM NGAL PREDICTS ACUTE KIDNEY INJURY IN POST OPERATIVE CARDIAC SURGERY PATIENTS RECEIVING FUROSEMIDE INFUSION

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Background: Furosemide infusion is given in post operative cardiac surgery patients to promote diuresis, prevent fluid retention and possibly to prevent kidney injury. There are reports of furosemide infusion accelerating acute kidney injury. **Materials and methods:** We undertook an observational study to investigate whether furosemide infusion causes acute kidney injury and if serum NGAL predicts this earlier than serum creatinine elevation. We studied 50 post operative CABG patients both off and on pump. Exclusion criteria include pre-existing renal dysfunction, ejection fraction <35%, cardio pulmonary bypass time >120 min. Furosemide infusion was given at the discretion of surgeons at a dose of 3-10 mg/hr. Serum creatinine and serum NGAL were estimated at zero hour (before starting of furosemide infusion), 24 hr and 48hr. **Results:** Till date 50 patients have been enrolled in the study, with a mean age of 55.58 yrs, mean pre operative serum creatinine was 1.11mg/dl. 20 patients (40%) had elevated serum NGAL values (mean NGAL value of 192.9 ng/ml). Out of these 20 patients, 4 patients (8%) had acute kidney injury as shown by creatinine elevation. None of these 20 patients developed full blown renal failure requiring renal replacement therapy. **Conclusion** This study has shown that in the absence of risk factors, furosemide infusion in the post-operative cardiac surgery patient may not accelerate renal injury. However the situation may be different in the high-risk patients. In the second phase of the study we plan to look at these high-risk patients as well to see if rising levels of NGAL can be relied upon to institute renal replacement therapy and perhaps avoid furosemide infusion in this group.

P066

SERUM CREATININE: PREDICTOR OF OFF PUMP CABG OUTCOME - SINGLE CENTER STUDY

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Off Pump CABG is a common revascularization surgery for the

relief of angina and prolongs life in selected patients who has main LAD and triple vessel diseases. These patients are susceptible to acute kidney injury, is associated with a high mortality, a more complicated hospital course, and a higher risk for infectious complications.

Aim and Objectives: A study was designed to analyze the effect of perioperative glomerular filtration rate on morbidity and mortality in Off Pump Coronary artery bypass surgery. We also aimed to create a model based on these risk factors that could serve as a tool for the prediction of renal failure requiring dialysis. **Methods:** Between January 2011 and January 2012, 826 consecutive patients underwent off pump coronary artery bypass surgery at our institution. The intraoperative and postoperative variables were recorded, including the postoperative outcomes for serum creatinine, GFR, no. of grafts, period of ventilation, period of ICU stay and hospital stay, perioperative myocardial infarction, use of intraaortic balloon pump, incidence of stroke, reexploration for bleeding, wound infection, the need for blood and blood product transfusion, intercostals drainage insertion, need of the dialysis and mortality.

Results: The risk of patients developing AKI following OPCABG is seen in patients with age more than 60 years Odds Ratio-42, 95% Confidence Interval 7.0-38, p value=0.00<0.001. The incidence of Myocardial infarction-1.8%, Intra-aortic counterpulsation balloon pump- 1.8%, Dialysis-4.4%, Re-exploration -10.4%, ICD Insertion-1.7%, CVA-0%, Wound infection-2.3%, Mortality-2.4%. Following AKI some patients required dialysis with Odds Ratio (OR) 53.22, 95% Confidence Interval (CI) :7.5-32.8, p-value=0.000<0.001, ICD Insertion OR-22, 95% CI:8.2-168.0, p-value=0.000<0.001, Wound infection OR-6.4, 95% CI:1.3-8.8, prolong duration of Ventilation >4 hrs OR-61.5, 95% CI:3.5-8.1, p-value=0.000<0.001, ICU stay >41hrs OR-13.2, 95% CI:1.4-3.0, p-value=0.003<0.05 and length of Hospital stay >7 days is OR-8.7, 95% CI:1.3-3.8, p-value=0.002<0.05.

Conclusion: The development of renal dysfunction after cardiac surgery is an independent predictor of poor outcome. Early preventive measures may be a way of reducing postoperative AKI

P67

EFFECT ON HOSPITAL OUTCOME IN DIALYSED PATIENTS ADMITTED WITH INFECTION - A PILOT STUDY

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Aim: The pleiotrophic effects of statins suggest a new face of it in infection regarding the potential to decrease morbidity and mortality. The aim of our study is to analyze the effect of statin on hospital mortality, stay and incidence of nosocomial infection in dialysed patients, admitted with infection.

Methods: This is a prospective observational cohort study, from July 2011 to April 2012, conducted in ICUs and inpatient wards of a tertiary care Hospital in Kolkata, India. All adult patients, on dialysis and got admitted with any evidence of infection were screened for inclusion. Patients with diagnosed as AKI and ESRD not on dialysis were excluded. Demographic parameters were noted including the duration of statin therapy prior to hospital admission. Severity of illness was assessed by APACHE-II score. All patients were followed up till hospital discharge. Hospital

mortality, hospital stay and new infection were documented. The cohort was divided into two groups viz. Statin group (patients who were on statin at least 1 week prior to hospital admission and continuing the medication) and Non-statin group (patients who were never on statin or were medicated with statin after hospital admission) and were compared for all outcome parameter. Results 49 patients were included. The average age in statin and non statin group were 60.26 ± 14.14 and 59.47 ± 11.77 ($p=0.833$), respectively. Average APACHE II score in statin group was 17.58 and in non statin group, 16.80 ($p=0.739$). Standardized mortality rate (SMR) showed lower trend in statin group (0.36) compared to non-statin group (0.59). The average hospital stay and incidence of nosocomial infection were also less in the statin group.

Conclusion: The observations from this study suggest that patients on statin had a better hospital outcome and hospital stay while admitted with infection. The occurrence of nosocomial infection showed a similar trend. However this needs to be reevaluated in a similar large cohort.

Respiratory: P068 - P085

P068

SURGE IN ANTIFUNGAL USAGE IN CRITICALLY ILL PATIENTS: ARE WE ON THE RIGHT PATH?

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Objective: To highlight the ongoing rampant abuse of Antifungal agents in ICUs in third world countries despite definite guidelines.

Method: A cross-sectional study was conducted on patients ($n=127$) in two ICUs of tertiary care setup, New Delhi from 16th of May to 15th July, 2012. Their demographic profile, indication for ICU admission, rationale of antifungal usage, Diagnosis, antifungal agent preferred etc was noted.

Result: More than half patients (53.54 %, $n=68$) were on Antifungal agents, 79.4 % ($n=54$) empirically and 20.58 % ($n=14$) evidence based. The rationale of starting antifungal empirically varied, 15 received prophylactically, 18 had deteriorating clinical status, 10 were immunocompromised, 2 had fresh shadows radiologically and 9 on the basis of more than one of the above factors. 31 patients had sepsis, 24 had malignancy, 23 had Diabetes Mellitus, 2 had Neutropenia as risk factor for fungal infection. Galactomannan levels and Candida Score were not used while assessing the need for antifungal in any of the cases. Once started none of the patients were monitored for the outcome with empirical coverage and no set guidelines were followed for their discontinuation. Empirically, Azoles were still preferred. As per epidemiological data, prevalence of non albicans candida as compared with candida albicans in the hospital was $>70\%$, still Fluconazole stayed the agent of choice in 48.4 % ($n=26$), under-dosing (200mg/day) was seen in 30.7 % ($n=8$). Voriconazole in 20.5 % ($n=14$), Echinocandins in 22.2 % ($n=12$) and Amphotericin B in 5.5 % ($n=3$). Fluconazole was preferred even in proven patients but under-dosing was seen in 75%.

Conclusion: Despite the latest recommendations in 2011, awareness about the appropriate usage of antifungal is still lacking. Unfortunately, guidelines also promote the empiricism

by highlighting early introduction of antifungals being associated with lesser mortality. Antibiotic stewardship and clearer guidelines are needed to address this problem.

P069

RETROSPECTIVE ANALYSIS OF THREE METHODS OF PERCUTANEOUS TRACHEOSTOMY

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Objective: Various methods of perform Percutaneous Tracheostomy are prevalent in India. The objective of this paper is to compare three methods – The Grigg's (Portex) technique, Blue Rhino (Cook Medical) Technique & Percutwist (Rusch) Technique. Our primary objective was to determine the procedural difficulties in performing PCT by these three techniques. Secondary objectives included cost-effectiveness and procedure length analyses.

Material & Methods: 150 adult patients under 90 kgs who were tracheostomized from 2009 to 2011 (3 years) were retrospectively analyzed. Collected data included method of PCT performed, procedural difficulties during surgery, procedural length & cost saving methods.

Results: 51 patients underwent Grigg's, 46 underwent Blue Rhino & 53 underwent Percutwist method. No patient required to be converted to surgical tracheostomy. Overall 20% (29/150) of patients had intraoperative complication. Most common was hypotension (15/150) related to sedation/positioning. Minor intraop & postop Bleeding was next (overall 10/150, Grigg's 5, Blue Rhino 3 & Percutwist 2). False passage was only seen with Grigg's (2/51) in which one patient had desaturation & bradycardia requiring intervention. Two patients in Grigg's group had posterior tracheal wall injury. In secondary objective, procedure cost was calculated as the cost of consumables in which Percutwist was the cheapest & Blue Rhino most expensive. Procedural length was minimal with Blue Rhino (mean 10 min SD 1.5 min), Grigg's (mean 13 min SD 1.5 min), Percutwist (mean 10.5 min, SD 1.5 min).

Conclusion: PCT is a safe procedure performed by trained Intensivist in ICU or OT. There were more procedure related complications in Grigg's (9/51) compared to Blue Rhino (2/43) & Percutwist (1/49). Percutwist is the most cost effective of all methods.

070

A CASE REPORT: THE TIGHT ORIFICE

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Background: Epiglottitis in the adult can be fatal and should be treated with the same degree of concern and suspicion in respect of airway patency as in children. There have been reports of cases of adult epiglottitis where the airway was lost either before or during intervention and mortality in adults is around 7%, with some reports suggesting it is as high as 20%. Even though adult epiglottitis is unpredictable and occasionally catastrophic in outcome, initial conservative management is still advocated by some. In many parts of the world now, Emergency Physicians

manage the airways and have the necessary skills, but faced with such a once-in-a-career scenario, it has its affects on the clinician's sphincters. We report a case of a 42 year old gentleman presenting our medium sized urban Emergency Department in Western Australia at 11pm, with acute epiglottitis, and posing a challenging airway management scenario for the emergency physicians. He presented febrile with sore throat, drooling and stridor; lying very still and quiet, on his side with his oxygen saturations continuing to decline. He proceeded to have a RSI in ED. Although successfully intubated, and later recovered in ITU, the voyage for the patient and the clinicians during that period has dealt us a few very important lessons. We share the lessons learnt and raise questions for debate on certain strategies in dealing with such a situation.

Conclusion: To advocate conservative management belies the aggressive nature of this disease. We believe there should be a greater emphasis on early interventional support of the airway. The words of Benjamin Franklin "if you fail to plan, you are planning to fail", rings hard and true in such cases.

P071

DIFFICULT AIRWAY MANAGEMENT IN CRITICAL CARE MEDICINE: FURTHER GEARING UP REQUIRED (CASE SERIES)

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Introduction: Difficult airway management in an acute setting is a big challenge for clinicians in ICU because of co-morbidities, non-ideal environment, and inadequate preparation. These scenarios are almost always unexpected, which may be fatal. Following three cases highlights the challenges which intensivists may face in their practice. Case1 (inadequate history): A 68 year male patient known case of hypertension, had underwent bypass surgery 10 years back; admitted with pneumonia and severe sepsis. Initially patient managed conservatively but as clinical condition deteriorated it was decided to mechanically ventilate. On direct laryngoscopy vocal cord stenosis was noted. After repeated attempts patient was intubated with small size (ID-5mm) endotracheal tube. Surgical tracheostomy was ultimately performed for adequate ventilation. Later on patient's relatives gave the history of prolong ventilation after CABG 10 years back not mentioned previously. Case 2 (inadequate preparation): A 70 years, male, COAD patient presented with pneumonia and sepsis. Initially patient was managed on non-invasive ventilation but his condition deteriorated rapidly requiring emergency endotracheal intubation. Direct laryngoscopy had shown Cormack Lehane 'grade IIIB' laryngeal view and even McCoy blade was not helpful. Ventilation was inadequate with laryngeal mask airway and he developed hypoxia and bradycardia hence emergency percutaneous crico-thyrotomy was performed. In the meantime patient had cardiac arrest he could not be revived. Case 3 (successful outcome): A 60 years male patient with pre-existing coronary artery disease presented with pneumonia and severe dyspnea. Direct laryngoscopy had shown Cormack Lehane grade IV laryngeal view so fiberoptic bronchoscope guided intubation was performed. The preparation took some time but as adequate

ventilation was maintained and patient was intubated successfully.

Discussion: Above cases highlights the need of training of intensivists for alternate interventions like LMA, Bronchoscopy. There should be a dedicated airway trolley in all ICU. Lastly there is no substitute for preparation and planning.

P072

ACUTE FEBRILE ILLNESS PROGRESSING TO MULTI ORGAN DYSFUNCTION SYNDROME: A DIAGNOSTIC DILEMMA IN CRITICAL CARE

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Objective: There has been a recent surge in patients presenting to critical care units with acute febrile illness (AFI) rapidly progressing to multi organ dysfunction syndrome (MODS). We studied the clinical presentation, complications, and outcome of these patients in a tertiary care hospital in North India.

Materials/ Methods: A retrospective observational study of patients admitted in Medical ICU of Fortis Hospital, Mohali with AFI & MODS over July 2012 to October 2012. Detailed history & examination, laboratory parameters, complications and outcomes were studied.

Results: A total of 40 cases were studied. The final diagnosis were leptospirosis (35%), Scrub typhus (27.5%), Dengue (17.5%), Influenza A (2.5%) and unknown etiology (17.5%). Mean age of patients was 44.5 years (22 years to 67 years) and males (65%) outnumbered females (35%). There was no correlation with common sources like working in farm lands, contact with animals and other epidemiological risk factors. Primary symptoms at the time of presentation were fever (100%), flu (87.5%) and altered sensorium (48.5%). All patients progress to MODS and admission in intensive care resulted in further complications from hospital acquired infections. Respiratory complications were most common in our study (100%). Several cases presented with severe icteric disease and renal failure (74.5% & 60.5% respectively). Coagulation disorders (84%) especially thrombocytopenia was common. Neurological manifestations were seen in 35% of cases, three of these patients (7.5%) were diagnosed to have intracranial bleed. Recovery was observed in 28 of 35 patients (80%), as five patients went against medical advice. Seven patients died, giving mortality of 20%.

Conclusion: Early diagnosis, vigilant monitoring and proactive care is the key to salvage these patients. Even rare/uncommon diagnosis should be considered in differentials to avoid delay in management. Reporting of these cases in national data base will increase awareness among physicians, thus decreasing mortality and morbidity.

P073

SAFETY OF PERCUTANEOUS TRACHEOSTOMY UNDER BRONCHOSCOPY GUIDANCE

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Objectives: Retrospective Observational Study to evaluate the

P079

FATAL ARDS COMPLICATION AMONG DENGUE CASES FROM BURDWAN, WEST BENGAL.

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Background: Dengue is common in our state as well as in our country in July to October every year. ARDS complication among Dengue cases are not very well known but last three years we found ARDS complication among Dengue patients. We have also observed few serious complications during mechanical ventilation in dengue ARDS comparing with other ARDS cases.

Methods: It was a longitudinal observational study conducted in 2010-12. Total 28 ARDS cases were found in 2010-12 (in July to October), 9 were Dengue sero positive cases (total 215 treated dengue cases in 2010 -12) and rest were from other diseases causing ARDS. All of them were given best possible treatment to see the course of their illness including mechanical ventilation. All of them were regularly followed up to see the course of their illness. One Dengue patient had DHF (Dengue Haemorrhagic Fever) and One had DSS (Dengue Shock Syndrome). Results-Mean age among dengue cases was 34.25 ± 1.60 years. Mean age among others was 42.36 ± 2.61 years. Average duration of mechanical ventilation among Dengue cases 7 ± 1.20 days, contrary to other cases were 4 ± 2.61 days. Average Duration of hospital stay in Dengue cases 10 days while that of other cases were 7.5 days. Complications during ventilation were more common in Dengue cases (7/9) 77.7%, mainly E.T. tube blockage, hypotension, electrolyte imbalance and bleeding manifestations. Mortality among dengue cases were 4(4/9) 44.4%, where as other cases 3(3/19) 15.78%.

Conclusion: ARDS among Dengue cases are more fatal and prolonged hospital stay comparing with other ARDS cases. Physicians must aware new and more complicated version Dengue and complications related to ventilatory management.

P080

H1N1 NOVEL INFLUENZA A. IS IT STILL A THREAT?

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Objective: Since 2009 pandemic, sporadic cases of H1N1 Influenza have been recorded in both the ICU and general wards. We undertook an observational study to investigate the epidemiology of this infection.

Methodology: This was an observational study conducted from May to November 2012 in the medical intensive care unit of Narayana Hrudayalaya, Bangalore. Confirmation of H1N1 was established by a throat swab for reverse transcriptase by PCR assay.

Results: Twenty one patients were confirmed to have H1N1 influenza during this study period. The median age of the study population was 38.5 years [Inter Quartile Range (IQR): 32-50]. Nine (45%) patients had predisposing co morbidities like cardiac insufficiency, diabetes mellitus, post renal transplant on immunosuppressants, malignancy, chronic kidney disease, active tuberculosis and pregnancy. Sixteen patients (76%) presented

with hypoxemic respiratory failure and fourteen (66.7%) of these patients required invasive ventilator support. Eleven (52.3%) of them required vasopressors for circulatory failure. Thirteen (61.9%) patients survived at 28 days and the median duration of hospital stay was 12 days (IQR: 5-19). Eight patients died at the end of 28 days with mortality rate of 38.1%. Mortality was not affected by co-morbid illnesses wherein the odds ratio for co-morbid conditions causing mortality was 1.2 (95% CI 0.20 -6.8, p value > 0.05).

Conclusion: Unlike in the west we have seen a steady inflow of patients with H1N1 Influenza presenting with respiratory failure. Mortality of this infection is still high and comparable with observation during the 2009 pandemic.

P081

COMPARISON OF PRESSURE SUPPORT AND PROPORTIONAL ASSIST VENTILATION PLUS FOR WEANING FROM MECHANICAL VENTILATION IN CRITICALLY ILL PATIENTS

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Pressure support ventilation (PSV) is widely used for weaning patients from mechanical ventilation in ICU. In PSV chances of oversupport and patient-ventilator dyssynchrony is commonly noticed. Proportional assist ventilation (PAV) is a weaning mode which has shown to improve these problems faced with PSV. But the complexity in setting up the mode for ventilation has declined the usage of this mode. A modified software update of PAV called Proportional assist ventilation plus (PAV+) has been introduced. PAV+ has simplified the mode and the complication with respect to PAV has been rectified. Objective: To compare length of weaning (in hours) on ventilator (840, Puritan Bennett, California), using Pressure support ventilation (PSV) and Proportional Assist Ventilation Plus (PAV+). Methods: 24 adult patients who were invasively ventilated via an endotracheal tube were included in the study after successfully completing SBT criteria. Patients on ventilator only for airway protection, neuromuscular disease, COPD were excluded. All included patients were randomized into 2 groups; PSV (n=10) mode group and PAV+ (n=14) mode group after passing 30 minutes of PSV trial. Both modes were continued unless the patients met failure criteria or for breathing without ventilator assistance. An extubation failure was assessed to determine failure of weaning mode. Results: An Independent t-test was used for comparing means. Mean Age was 47.19 ± 16.67 . Length of weaning (in hrs) was 3.98 ± 1.9 for PAV+ & 3.44 ± 1.1 for PSV. In PAV+ mean & SD changes in ABG were, H+ -38.09 ± 6.7 , PaCO₂ -38.58 ± 14.13 , P/F ratio -323.45 ± 75.58 and for respiratory mechanics were PIP -14.43 ± 7.68 , MAP -8.9 ± 2.62 . PSV mean & SD changes were H+ -39.52 ± 9.37 , PaCO₂ -34.45 ± 7.05 , P/F ratio -323.44 ± 50.92 and for respiratory mechanics were PIP -15 ± 3.31 , MAP -9.25 ± 1.56 . ICU Discharge (in days) was 11.86 ± 6.188 and 12.6 ± 7.9 in PAV+ & PSV respectively.

Discussion: There was no statistical significance present. Clinically the duration of ICU stay was reduced to nearly a day in comparison.

safety of percutaneous tracheostomy (PT) using the Ciaglia Blue Rhino technique under fiber-optic bronchoscopy guidance in Intensive Care Unit in a tertiary level Hospital.

Method: An observational study to evaluate efficacy, safety and long term consequences of percutaneous tracheostomy done by CIAGLIA BLUE RHINO technique under bronchoscopy guidance performed over 66 patients during January 2 within 12 months in our Multi disciplinary ICU. All procedures were done at the bedside with aseptic methods under ETCO₂ monitoring. Demographic variables, days of mechanical ventilation after PT, decannulation, operative and post operative complications were recorded.

Results: Of 66 patients studied 28 pts were decannulated successfully during the hospital stay. Total 9 pt had complication. Out of them only one was major, loss of airway, due to over pulling of endotracheal tube; which was promptly managed with re-intubation over the Fibreoptic scope.

Others were minor like bleeding (2), transitory desaturation (3), hypotension (1), guide-wire kinking (1), and difficult dilatation (1). There were no deaths during or within 48 hours of percutaneous tracheostomy. None of the patients had posterior tracheal wall injury. Off the 28 patients decannulated, none had any evidence of local complications.

Conclusion: Overall percutaneous tracheostomy using the Ciaglia Blue Rhino technique with fiber-optic bronchoscopy assistance is a safe procedure that can be performed in the ICU by trained intensivist without any major complications. Fibreoptic Bronchoscope offers real time view of exact tracheal space punctured, also prevents posterior tracheal wall injury and also prevents accidental loss of airway.

Key Words: Blue Rhino; Percutaneous tracheostomy; Fiber-optic Bronchoscopy.

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P074

STUDY COMPARING DIFFERENT METHODS OF THROMBOPROPHYLAXES - PHARMACOPROPHYLAXIS VS MECHANOPROPHYLAXIS (TED STOCKINGS VS CREPE BANDAGE)

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Objectives: 1. Comparison of pharmaco-prophylaxis vs mechano- prophylaxis in critically ill patients 2. Comparison of two different methods of Mechano - prophylaxes-TED stockings vs crepe bandage in patients with contraindications for pharmaco-prophylaxis.

Materials & Methods: Patients > 18 years of age admitted to MICU were randomized to either thromboprophylaxis group or one of the mechanoprophylaxis group if they had contraindications for pharmacoprophylaxis. Patients were enrolled on a 1:1:1 basis. Patients already suffering from deep vein

thrombosis or pulmonary thrombo-embolism receiving anti-coagulation therapy were excluded. Patients were then risk categorized based on APACHE II scores and requirement of vasopressors, central venous catheters and need for mechanical ventilation. Crepe bandage and TED stockings were applied as per international guidelines. Bi-lateral venous Doppler scans were performed in all candidates at admission, on day 7 and at discharge. Patients were studied for three outcomes – deep vein thrombosis, pulmonary thrombo-embolism and mortality Results: Till date 60 patients have been studied with 20 in each category. 5 patients in each of the pharmacoprophylaxis and crepe bandage group and 4 patients in the TED stocking group had an APACHE > 20. None of the patients was found to have DVT or PTE and 12 patients expired.

Conclusion: In our preliminary study, one method of mechanoprophylaxis was not found to be superior over the other.

P075

HYPERTENSION INDUCED CRASHING ACUTE PULMONARY EDEMA : IS INTUBATION OF TRACHEA IS REALLY NECESSARY ? our experiences in a rural ICU setup.

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Introduction: Acute severe pulmonary edema due to hypertension is a common presentation in emergency department. These patients urgently need intubation of trachea and mechanical ventilation with consequent morbidity, stay and high cost.

Materials: This is a retrospective review only in a rural level 2 ICU. Inclusion criteria were Systolic Blood Pressure 180mmHg or more. 11 numbers of cases were enrolled from April 2011 to November 15th 2012. The primary outcome was the need for intubation. Secondary outcomes were improvement in spo₂, respiratory rate, hemodynamic stability and need for diuretics.

Method: In ICU, we immediately put these patients on NIPPV instead of tracheal intubation and then repeated bolus doses of nitroglycerine were administered. Initial mode of Pressure control with backup respiratory rate of 7 with Pressure support of 15 and PEEP of 7 in all cases and subsequently adjusted according to pulmonary and hemodynamic parameters. Initial nitroglycerine bolus dose was 500 microgram in all cases and subsequent doses were administered according to NIBP .The mean number of nitroglycerine dose was 3, corresponding to 1450 mcg (range 1000-25000 mcg). All patients had tremendous improvement in respiratory parameters.

Results: None of the patient (0%) required tracheal intubation. Three of the patients had transient decrease in SBP<100mmHg, but resolved spontaneously.

Conclusion: In this single centre, small retrospective analysis of patients with acute hypertensive heart failure, nitroglycerine bolus with NIPPV prevented the tracheal intubation and subsequently minimizing the stay in ICU and thus overall cost burden to the family in a small town of India.

P076

RATES, RISKS AND RUPEES: THE ATTRIBUTABLE COSTS OF VENTILATOR ASSOCIATED PNEUMONIA (VAP) IN A TERTIARY LEVEL INTENSIVE CARE UNIT (ICU)

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Objective: To study the attributable costs of ventilator associated pneumonia (VAP) in a tertiary level ICU.

Materials and methods: All patients admitted to the ICU, and mechanically ventilated longer than 48 hours, between November 2010 and October 2011 were included. VAP was diagnosed on the basis of the CDC criteria and CPIS score, and confirmed on microbiological culture analysis. The duration of mechanical ventilation, ICU and hospital stay, the costs incurred for medications, and the total hospital expenditure were audited separately and compared between patients who developed VAP versus those who did not.

Results: A total of 94 out of 253 ventilated patients (37.5%) developed VAP, an incidence of 40.7 infections per 1000 ventilator days. Compared with uninfected, ventilated patients, patients with VAP had significantly higher mechanical ventilation days ($15.48 \pm SD 11.05$ days versus $5.38 \pm SD 2.31$ days, $p < 0.001$), unadjusted length of ICU stay ($17.65 \pm SD 13.35$ days versus $6.68 \pm SD 3.06$ days, $p < 0.001$), length of hospital stay ($28.80 \pm SD 24.66$ days versus $13.96 \pm SD 11.18$ days, $p < 0.001$), medication costs (Rs 246064.81 \pm SD 459519.78 versus Rs 66089.85 \pm SD 56217.69, $p < 0.001$), and hospital costs (Rs 426343.66 \pm SD 590410.0 versus Rs 167397 \pm SD 188771.53, $p < 0.001$). Using multiple linear regression, after adjusting for other factors that may affect costs, the attributable cost of VAP was estimated to be Rs 299578 (95% confidence interval = 2,30,344-3,68,812; $p < 0.001$).

Conclusion: VAP occurs in a considerable proportion of patients undergoing mechanical ventilation and has significant economic implications, especially in the Indian population. Hence, strategies that effectively prevent VAP are urgently needed.

P077

CAN WE PREDICT READMISSION RISK OF COPD EXACERBATION? - A COMPARATIVE PROSPECTIVE STUDY

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Objective: Acute exacerbation of chronic obstructive lung disease (AECOPD) is a significant cause of morbidity and mortality. One year readmission rate is 25-30% in patients with AECOPD. The aim of this study is to identify potential risk factors for hospital readmissions among patients experiencing AECOPD.

Methods: 36 patients with COPD admitted for an exacerbation in a tertiary hospital in the Ahmedabad were followed for a period of 3 months. Information on potential risk factors including clinical and biochemical profile, ABGA, ECG, 2D echo, smoking status, in hospital medical care and medications, use of SABA were collected at the admission and at discharge.

Statistical Analysis: Student's t-test and Fisher's test were applied

with 95% CI to find out readmission risk for AECOPD.

Results: Out of 36, 44% (n-16) patients were readmitted, 75% of them were male. Smoking/tobacco was very much prevalent (72.3%). Majority of them were from lower socioeconomic class and had mean age 60.2 years. 78% (n-28) had normal BMI but they were clustered at the extremes. Statistical analysis for probable risk factors of readmission were as follows: 75% patients (n-12) had cor P and raised JVP ($p < 0.002$). History of day time somnolence ($p < 0.004$), altered mental status on admission ($p < 0.01$), silent chest on examination ($p < 0.0001$), long term O2 treatment (LTOT) ($p < 0.001$), need of BiPAP ($p < 0.0001$) and intubation ($p < 0.004$) in the previous admission, $pCO_2 > 50$ on admission ($p < 0.002$), admission within the last year ($p < 0.002$) were significantly associated with need for readmission within 3 months.

Conclusion: My study shows that readmission in patients with COPD can be predicted by evaluating 2D Echo for cor P, previous pCO_2 , history of altered mental status, LTOT, need of mechanical ventilation and also by simple parameters like age and BMI. This piece of information can be used to formulate holistic management approach after admission for AECOPD.

P078

A SINGLE-CENTER 12-YEAR EXPERIENCE WITH PERCUTANEOUS DILATIONAL TRACHEOSTOMY IN INTENSIVE CARE UNIT

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Objective: To evaluate immediate complications of the percutaneous dilatational tracheostomy technique (PDT) in a tertiary care teaching hospital.

Introduction: PDT is a simple bedside procedure. However safety of PDT has not been established in a large case series in an Indian ICU. This study was conducted to evaluate the safety of PDT.

Methods: A retrospective study was done in the 40 bedded ICU. All adult patients undergoing PDT between April 2000 & October 2012 were included in the study. Demographic profile, severity scoring, technique used for the PDT & its immediate complication were recorded from the PDT Performa & files.

Results: A total of 1441 PDTs were done in 1433 patients over a period of 12 years. The mean age was 54.8 years with 1004 (69.67%) male & 429 (29.77%) females' patients. Griggs technique was most commonly used (88.27%). Long term ventilation was the most common indication (50.86%) followed by Airway protection (40.11%), facilitation of weaning (8.67%) & airway obstruction (0.34%). No complications were observed in 1270 patients. Procedural complication were seen in 171 (11.86%) patients as tabulated below-

Complications: Patients Hypotension, arrhythmia & desaturation Minor bleeding Major bleeding Difficult tube placement False passage Subcutaneous emphysema Conversion to open tracheostomy 4.92 % 4.30 % 1.11 % 2.42 % 0.48 % 0.41 % 0.13 %.

Conclusion: On the basis of this large single centric study we can conclude that PDT is a safe, reliable & convenient procedure which can be easily performed bedside by experienced intensivists.

P082

IS ALL HYPOXEMIA AN ALARMING CONDITION??? CASE REPORT: MULTIPLE SMALL PULMONARY ARTERIOVENOUS MALFORMATION

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A 55-year old female patient referred from a tertiary hospital as difficulty in weaning from mechanical ventilation due to Type I respiratory failure. Patient was received from emergency triage to the intensive care unit and was mechanically ventilated. Due to persistent hypoxia (ie, < 88% on FiO₂ of 1), patient was ventilated with Bilevel mode of ventilation as conventional strategies were not successful. Chest X-ray didn't reveal any signs of ARDS throughout the course of stay in ICU. ECG and Echocardiography reveal normal functional status. Due to presence of increased shunting, suspicion of pulmonary embolism was considered. As patient was persistently hypoxemic, CT scan was deferred due to feared complications. But, patient had a low Geneva score for probability of pulmonary embolism. Meanwhile patient's ET aspirate had grown acinetobacter which was sensitive to Netilmycin. Patient was tracheostomized in view of prolonged difficulty in weaning due to hypoxia. Later patient was weaned off with volume support ventilation to t-piece with a targeted SpO₂ of > 82%. During mobilization, it was noticed that patient was able to tolerate significant desaturation upto 70% without any signs of respiratory distress. She was weaned to t-piece and shifted out of ICU to the ward. Later the patient was taken for CT scan with contrast and it revealed multiple small pulmonary arteriovenous malformation at the right middle lobe, right lower lobe and left upper lobe. A suggestion for intervention embolization was given. As the patient condition had improved she was discharged.

P083

EFFICACY OF RECRUITMENT MANOEUVRE WITH OR WITHOUT ANTIDERECRUITMENT STRATEGY IN ARDS PATIENTS: A PROSPECTIVE STUDY

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Background: In acute respiratory distress syndrome (ARDS), adequate positive end-expiratory pressure (PEEP) may recruit collapsed alveoli and reduce repetitive opening and closing that causes shear stress. Recruitment manoeuvre (RM) opens up collapsed segments of the lung in many patients with ARDS whereas some patients do not respond to RM. a RM that achieves an open lung may reduce the risk of oxygen toxicity, overdistention injury and shear-stress injury. In the responders, the collapse may reappear once the RM is complete and the patient is returned to his pre-RM PEEP level. Oxygenation benefit achieved by the RM may be partially lost soon after the RM. **Objective:** To evaluate the outcome of setting the PEEP using decrement PEEP titration after an alveolar recruitment manoeuvre and its effects on the clinical outcome in patients with ARDS. **Methods:** Twenty five patients with early ARDS were assigned till now in this study. Initially recruitment manoeuvre was given using pressure control ventilation to determine the responders or non-responders. Responders were randomly

assigned to 'antiderecruitment RM' group and 'only RM' group. The 'antiderecruitment RM' group received RM using volume control ventilation and optimal PEEP was set after RM using decremental PEEP titration method. The 'only RM' group patient was put on baseline ventilator settings after manoeuvre.

Results: The study is ongoing and will be complete by end-January 2013. The results will be presented at the conference.

P084

ROLE OF NON-INVASIVE POSITIVE PRESSURE VENTILATION IN POST-OPERATIVE CANCER SURGERY PATIENTS

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Objective: In present study we will use non-invasive positive pressure ventilation (NIPPV) in post-operative cancer surgery of prolong duration (8-10 hour) especially for lung function change, postoperative pulmonary complications, early recovery and rehabilitation.

Material and Methods: Sixty patients were enrolled in the study. All patients were randomly divided into control group (venti mask) and NPPV group. NPPV group received intermittent NIPPV therapy in first 24 hours of post-cancer surgery. The average IPAP was (10±2.3) cmH₂O and EPAP was 4 cmH₂O. Total ventilation time was (5.5±3.8) hours. Post-operative lung function change to NPPV was assessed with chest X-ray, lung function testing and clinical evaluation was done before and 2-3 days after surgery.

Results: There was significant difference of total postoperative pulmonary complications rate during hospitalization between the two groups (2/30 in NPPV group vs 6/30 in control group). However, there was significant difference in the change of lung function parameters after operation between the two groups. No significant adverse effects of NPPV were found in the present study.

Conclusions: In the present study role of NIPPV in post-cancer surgery patients resulted in improved lung function, had significant effects on post-operative pulmonary complications and lung functions.

Keywords: non-invasive positive pressure ventilation, cancer surgery, postoperative pulmonary complications

P85

BILATERAL SPONTANEOUS PNEUMOTHORAX: A LIFE THREATENING CONDITION

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Spontaneous bilateral pneumothorax is a rare condition constituting 1.3% of all cases of spontaneous pneumothorax. Clinical presentation is variable, ranging from mild dyspnea to tension pneumothorax. Spontaneous pneumothorax may cause

serious respiratory distress and can be a life-threatening condition. Diagnosis from clinical signs alone is difficult and definitive diagnosis requires chest radiography.

Objective: To study cases of bilateral spontaneous pneumothorax.

Materials and Methods: A study was conducted in Kasturba Chest Hospital K.G.M.U. Lucknow to study the cases of Spontaneous bilateral pneumothorax from October 2010 to October 2012. Results: Spontaneous bilateral pneumothorax was detected in 8 patients. Out of 8 patients, 5 were male and 3 female. Mean age of the patient was 40.2 years. Breathlessness was the most common symptom (100%) followed by Chest pain (75%). 1 patient presented with shock. Diagnosis was confirmed by Chest X Ray in all patients. 100% patients had secondary spontaneous bilateral pneumothorax (5 patients had COPD and rest 3 had Tuberculosis). All patients were managed by intercostal tube drainage.

Conclusions: SBSP could be a life-threatening condition with tube drainage as the appropriate and effective management in most cases of bilateral pneumothorax.

Sepsis: P086 - P103

P086

BREAKTHROUGH INFECTION OF TRICHOSPORONOSIS DUE TO USE OF ECHINOCANDINS AS A SINGLE ANTIFUNGAL AGENT, IN IMMUNO-COMPETENT PATIENT

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Introduction: Echinocandins and in particularly caspofungin has broad spectrum antifungal activities. Their safety profile is also better than other antifungals like amphotericin B and azoles. Thus they are becoming popular choice of treatment in case of fungal infection. The first case report of brain abscess due to Trichosporon was reported in 1970. The incidences of trichosporonosis are rising recently, and the infection is associated with high mortality. But echinocandins have and minimal or no activity against Trichosporon species. Thus they are resulting in increased breakthrough infection due to Trichosporon species and other rare fungi, especially in immunocompromized patients.

Case report: We came across a rare case of breakthrough infection with Trichosporon asahii in an immuno-competent patient following treatment with caspofungin for non responding fever and abdominal sepsis. The patient had road traffic accident with multiple bowel perforations. Underwent multiple surgeries, had fungal sepsis, renal failure due to breakthrough trichosporonosis.

Discussion: Echinocandins are known to increase the incidences of breakthrough trichosporonosis in immunocompromized hosts. Exact prevalence of disseminated trichosporonosis in India is not known, but recently many case reports point to the increasing incidences. There are no guidelines how to treat these immunocompetent hosts and what is the optimal duration of treatment. Associated multi organ failure with trichosporonosis also increases morbidity, hospital stay and cost of treatment of these patients.

Conclusion: As patients receiving echinocandins has shown

breakthrough infection by Trichosporon, we propose further studies evaluating safety of echinocandins as single agent in treatment of fungal infections, particularly in immuno-compromised patients.

P087

OPEN LABELED, RANDOMIZED, CONTROLLED TRIAL COMPARING LEUKODEPLETED (FILTERED) BLOOD TRANSFUSION AND NON LEKODEPLETED (UNFILTERED) BLOOD TRANSFUSION IN CASES OF SEVERE FALCIPARUM MALARIA

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Purpose: Blood transfusion in ICU patients associated with increased risk of bacterial sepsis, transfusion-associated lung injury and mortality. This has been attributed to leucocytes in transfused blood.

Objective: To compare leukocyte-depleted blood transfusion with non-leukocyte depleted blood transfusion in patients with severe falciparum malaria.

Methods: Outcome measures: Death from all causes at 28 days, incidence of ARDS and sepsis, severity of multiple organ dysfunction, and length of ICU stay in the two treatment groups. Patients: 64 consecutive ICU patients studied over 16 months. All had severe falciparum malaria, required blood transfusion. Pregnant women, patients with previous blood transfusions excluded. Intervention: Leukodepleted blood transfusion using bedside leukodepletion filter in "Filtered group", versus non-leukodepleted blood transfusion in "Control group."

Results: Overall 28-day mortality was similar in both groups (26.6% in filtered group vs 36.7% in control group $p=0.153$). Incidence of ARDS reduced in filtered group (8.82% vs 26.67% in the control group; $p=0.059$). However, these were short of statistical significance. Leukodepleted blood significantly reduced occurrence of multiorgan dysfunction- mean Day-4 Sequential Organ Failure Assessment (SOFA) score was 4.5 (SD 3.203) in filtered group and 7.96 (SD 4.26) in control group ($p=0.002$). Leukodepleted blood transfusions did not significantly reduce incidence of secondary bacterial sepsis (38.2% vs 53.3% in control group, $p=0.226$) or duration of ICU stay (mean 7.06, SD 3.38 vs mean 8.63, SD 4.32 in control group, $p=0.108$).

Conclusion: Leukodepleted blood transfusion is possibly superior to non-leukodepleted blood transfusion in severe falciparum malaria. In present study this benefit did not reach statistical significance because of the relatively small number of subjects studied.

Clinical Implications: A larger similar study with 292 subjects is required to conclusively prove or disprove the benefits of leukodepleted transfusions.

P088

INCIDENCE OF BLOOD STREAM INFECTIONS IN NURSERY IN A TERTIARY CARE HOSPITAL

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Introduction: For decades, health care-associated infection (HAI) has been considered by many as an unavoidable problem associated with prolonged stays in an intensive care nursery. Immature skin and immune systems, with necessary invasive interventions all put the premature neonate at high risk for HAI. Bloodstream infections(BSI), are the most frequent nosocomial infections.

Objectives: To find the incidence and etiology of BSI's in nursery in LHMC. **Material Methods:** A one year surveillance was carried out in Nursery (January-December 2011) to find cases of blood stream infections. A performa was prepared and filled to find cases of BSI's. Data was collected from Nursery and Microbiology Laboratory. Each case was followed, etiology and incidence was seen on monthly basis. **Results:** Out of the total 1064 new admissions there were 30 HAI's. Incidence of HAI/1000 patient days was 5.57 and BSI/1000catheter days was 14.14. The most common organisms isolated from BSI's were *S.aureus* (32.4%), *Acinetobacter* spp. (24%) and *E.coli* (11.3%) respectively. In *S.aureus* resistance to Amoxicillin clavulanic acid (74%) and no resistance to Vancomycin were seen. *Acinetobacter* spp. was resistant to Amoxicillin clavulanic acid(83%), Amikacin(66%), Gentamicin (88%) and Ceftriaxone (77%). In *E.coli* 88% resistance was seen to Amoxicillin clavulanic acid, Ciprofloxacin (79%) and Ceftriaxone (77%).

Conclusion: Though incidence study is cumbersome, laborious, but it is useful to monitor the trends of infection and risk factors associated with infection and appropriate action can be taken to reduce the Health care associated infections.

P089

FUNGEMIA AT A TERTIARY CARE HOSPITAL: INCIDENCE, RISK FACTOR, THERAPY, AND DISTRIBUTION AND ANTIFUNGAL SUSCEPTIBILITY OF CAUSATIVE SPECIES

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Aim: The aim of this study was to review fungal blood stream infections at a tertiary care hospital; To evaluate the incidence, risk factors, distribution of causative species and their antifungal susceptibility, therapy and outcome.

Methodology: A review of all the fungal blood stream infections (BSI) was conducted for duration of one year (Dec 2010 to Nov 2011). The blood cultures were processed in BacT/ALERT 3D and the culture isolates were identified and antifungal susceptibility MIC was performed in Vitek 2 Compact for four antifungal drugs: Fluconazole, Itraconazole, Voriconazole and Amphotericin B. Patient details including risk factors, underlying disease and outcome was retrieved from the Hospital Information System (HIS).

Results: Among total blood culture samples received (n=9364), positivity was seen in 680 (7.26%) samples. Fungal blood stream infections comprised 57(8.38%) of all total positive blood cultures. Majority of them are Non- albicans *Candida* sp.(82.45%). The most

common species were *Candida haemulonii* (n=19,33.4%), followed by *C.albicans*(8), *C.tropicalis*(8) and *C. parapsilosis*. Susceptibility to antifungal drugs was similar in most species except in *C.haemulonii*. Fluconazole (89.4%) and Amphotericin B (78.9%) resistance was noted in *C. haemulonii* patients. Five common Risk Factors identified were-Antibiotics (100%), Assisted ventilation (96.29%), CVP (85.18%), ICU stay (81.48%) and TPN (70.37%). Fluconazole was most commonly used to treat fungal BSI patients (33%) and mortality was (14.81%).

Conclusions: Majority of *Candida* sp isolated were Non- albicans *Candida* sp. (82.45%). *C. haemulonii* was the most common isolated (33.4%) which was resistant to Fluconazole and Amphotericin B. Fluconazole still remains drug of choice to most of the *Candida* sp except *C.haemulonii*. Automated blood culture & identification methods significantly reduced the time and decision making for early antifungal therapy and facilitated better outcome in managing fungal infections.

P090

A RARE CASE OF FUSARIUM MENINGITIS

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Introduction: Fungal meningitis is very uncommon in immune-competent patients. Here we are reporting case of fusarium meningitis ,in an agriculture worker after she had a penetrating injury. 53 yrs old female was apparently well till 2 months back when she had giddiness and fall while watering the plants following she was unconscious for a brief period. After regaining consciousness she noticed weakness of left side of body. she was diagnosed to have cervical fractures which was managed conservatively. For last 1 week patient attenders noticed that she was sleeping a lot although she was oriented and talking sense. Patient drowsy but arousable , Oriented to place, person and time. Power was left upper and lower limb: 3/5. Findings of CT Brain was asymmetrically dilated lateral ventricles and MRI Brain was showing asymmetrical ventricles with no other space occupying lesion. CT C Spine was showing C5/C6 cervical cord contusion.patient underwent endoscopic septostomy.

Findings was multiple clumsy tissue strands present in right lateral ventricle blocking Foramen of Monro. Septostomy was done. Tissue was sent for biopsy, staining and culture. Immediately after surgery patient sensorium improved. Tuberculosis was suspected and she was started empirically on ATT. Culture showed a growth of filamentous fungus initially, so amphoterecin was started with proper monitoring of potassium and creatinine . After 3-4 days , patient was again drowsy. CT scan of brain was done which showed bilaterally asymmetrically enlarged ventricles.In view of her clinical condition and ventriculomegaly right V-P shunt was performed. Patient sensorium improved after the surgery. Her final culture growth was suggestive of fusarium species.

Conclusion: CNS fungal infection are commonly seen in immune-compromised patients. But rarely we can see the infection immune-competent patient after CNS trauma or device placement.

P091

PROCALCITONIN (PCT) PREDICTS SEVERITY AND OUTCOME OF COMMUNITY ACQUIRED BACTERIAL PNEUMONIA (CABP)

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Background : CAP is the third leading cause of death worldwide and causes 3.46 million deaths annually. In India, it is the fifth commonest cause of death with estimated 0.76 million deaths annually. Timely interventions using appropriate risk stratification strategies will aid in reducing the mortality rates. Various prognostic biomarkers are being studied. Procalcitonin (PCT) is known to rise in cases of Community Acquired Bacterial Pneumonia (CABP) and it is also a marker of sepsis. We aim to study the prognostic value of PCT in patients with CABP. **Methods :** We enrolled 61 patients of CABP presenting to our Hospital. After informed consent, patients aged ≥ 15 yrs with clinical and radiologically confirmed CABP were enrolled in the study. The Pneumonia severity scores were calculated at admission and baseline serum PCT levels were recorded semiquantitatively by blinded staff. Patients were treated with antibiotics as per hospital protocol. Patients were followed up for 30 days for recovery or mortality. The Sensitivity, Specificity, Positive and Negative predictive values were calculated for PCT using each of the 3 scores as a gold standard.

Results: Demography : n 61 Age Mean (SD) 44.23 (16.49) Males 44 (72.13%) Females 17 (27.87%) PSI Mean 84.35(35.93) Predictive value of PCT for severity of CABP : SEVERITY SENSITIVITY SPECIFICITY PPV NPV PLR NLR PSI 66.67 83.78 72.73 79.48 4.12 0.397 CURB65 84.61 77.08 50 94.87 3.678 0.2 CRB65 100 64.41 8.69 100 2.808 0.

Conclusions: PCT level at admission predicts patient at low risk of mortality. PCT when combined with CRB65 improves sensitivity and NPV for prediction of mortality to 100.

P092

NOSOCOMIAL INFECTION WITH CARBAPENEMASE PRODUCING ORGANISMS - EMERGING LIFE THREATENING DREADED PROBLEM

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Introduction: Carbapenemase producing organisms are nosocomial, rare but in setting of prolonged hospital stay susceptibility increases due to injudicious use of antibiotics. **AIM:** Study of clinical profile of carbapenemase producing nosocomial septicemia.

Materials & Methods: Clinical profile of patients admitted to our multi-speciality tertiary care referral hospital with the "new bug septicemia" were studied and reported as an emerging dreaded problem.

A total of 3 cases were admitted in succession in one month period with male:female ratio 2:1, average age 52 years, and average hospital stay of 21 days. Two cases were referred from other hospitals with catheter in-situ, while one direct admission. All the

three cases had fever without localised infection at presentation, with background problems of Post-ATG hypoplastic anemia in one, Lupus (multiorgan involvement, Acute Stroke in one. All the three were documented to have radiological evidence of nosocomial pneumonia involving right lung (2 cases had VAP). All the 3 cases had septicaemia with organ dysfunctions & were managed in Medical ICU with multiple antibiotics during hospital course with adjunctive intensive general & organ supportive care. Carbapenemase producing gram negative bacilli grown in blood in two cases and in tracheal aspirate in one case. Organisms isolated were *Acinetobacter baumannii* in two cases while *Klebsiella pneumoniae* in one case. Two cases received antemortem parenteral Colistin (as per sensitivity report) while in the third case the report was received after death. All the three cases expired and autopsy consent was denied.

Conclusions: Emerging resistance trends in gram negative infections with Carbapenemase producing strains have high mortality potential, significantly limits treatment options for life threatening gram negative infections calling for high index of suspicion in appropriate clinical setting, warranting early recognition, management besides emphasising the need for strict adherence to universal aseptic precautions to limit spread & mortality.

P093

INCIDENCE AND OUTCOME OF MULTI DRUG RESISTANT GRAM NEGATIVE BACTERIAL INFECTIONS IN INTENSIVE CARE UNIT OF A TERTIARY CARE HOSPITAL.

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Background: Infections with multi drug resistant (MDR) gram-negative bacteria are increasingly becoming widespread, especially in the intensive care unit (ICU) setup. We overtook this study to find the incidence and outcome of such infections.

Materials and methods: A 10-month retrospective cohort study of 69 positive isolates from MDR gram-negative bacteria were collected from medical ICU. Baseline patient characteristics, ICU course and outcome were noted in a predesigned pro forma. The primary outcome measure was ICU mortality and secondary outcome measure was requirement of organ support.

Results: In 698 admissions over 10 months the cultures were sent in 595 patients. Out of 178 positive isolates, 69 (38.7%) were positive for MDR gram-negative bacteria. The overall ICU mortality was 29.2%. The most common isolate was *Acinetobacter baumannii* (30%) and respiratory tract (70%) was most common source of isolates. The mortality rate with MDR gram-negative bacterial infection was 43.3%. Among the non-survivors with MDR gram-negative bacterial infections, 100% required vasopressor support, 93% required renal replacement therapy and 97% required mechanical ventilation during their ICU stay.

Conclusion: The incidence of MDR gram-negative bacterial infections in ICU is increasing and the mortality with these infections is high.

P094

CANDIDURIA IN INTENSIVE CARE UNITS: INCIDENCE, COURSE AND OUTCOME

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Objective: To assess the incidence of candiduria among patients admitted in a medical ICU of an Indian hospital, to perform microbiological characterization and to study their ICU course and outcome. Materials and methods Data from 93 consecutive ICU patients with candiduria, admitted during an 18-month period, was obtained retrospectively. Data regarding patient demographics, ICU course and outcome were entered in a proforma.

Results: Out of 3,142 ICU admissions, the incidence of candidemia was 29.6/1000 admissions. A high proportion of patients (80.6%) had an indwelling urinary catheter with the mean duration of catheter days being 5.89 ± 3 days. Other associated risk factors such as diabetes mellitus and antibiotic usage were seen in 74.2% and 86%, respectively. Concomitant candidemia was seen in 19.4% of cases. Non-albicans *Candida* spp. (66.7%) emerged as the predominant pathogen causing candiduria. ICU mortality was 29%.

Conclusions: There is a high incidence of candiduria in ICU patients, especially among those with indwelling catheters and those on antibiotic therapy. Moreover, in our cohort, an increased proportion of patients with candiduria had non-candida infection emphasizing the need to have localized regional surveillance studies to identify the locally prevalent candida species and devise anti-fungal therapy protocols.

P095

CANDIDA SCORE: AS A PREDICTOR OF MORTALITY IN PATIENTS WITH CANDIDEMIA

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Objective: To determine risk factors for mortality in patients with candidemia admitted to medical ICU.

Materials and Methods: An 18-month retrospective cohort analysis including 56 patients with candidemia. Baseline patient characteristics, candida score (CS), ICU course and outcome were noted. Primary outcome measure was ICU mortality.

Results: Out of 3,142 ICU admissions, incidence of candidemia was 17.8/1000 admissions. Fifteen patients had co-existing candiduria. Mean interval between ICU admission and candidemia was 12.9 ± 14.4 days. *Candida albicans* was isolated in only 21.4%. Among the non-albicans species *C. tropicalis* was the commonest species isolated from 28.6% isolates followed by *C. glabrata* (12.5%). 53.6% required vasopressors, 41.1% required RRT and 64.3% required mechanical ventilation. Mean length of ICU stay was 22.9 ± 28 days and hospital stay was 30.1 ± 30.2 days. Crude ICU mortality was 33.93%. There was no statistically significant difference between mortality rates of patients with albicans and non-albicans candidemia ($p = 0.732$). Patient parameters like age, admission APACHE II score, CS, previous

anti-fungals and underlying co-morbidities which were statistically significant in differentiating survivors and non-survivors in the univariate analysis, were included in multivariate analysis. Only two factors, previous anti-fungals ($p = 0.004$, OR - 101.4, 95% CI: 4.52 - 227.7) and CS above three ($p = 0.028$, OR - 13.2, 95% CI: 1.3 - 125) were found to be independently predicting mortality.

Conclusions: Candida infection is generally late-onset. *Candida non-albicans* infection was much more common but there was no difference in mortality. Patients developing candidemia, in spite of being on anti-fungal drugs, had a higher risk of dying and CS may be useful in predicting mortality of ICU patients with candidemia.

P096

PREVALENCE OF MULTIDRUG RESISTANCE, EXTENSIVE DRUG RESISTANCE AND PANDRUG RESISTANCE AMONG MULTIPLE GRAM NEGATIVE ISOLATES: EXPERIENCE IN A TERTIARY CARE HOSPITAL ICU IN NORTH INDIA

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Introduction: Antibiotic resistance is a major world-wide problem in the ICU. The situation in developing countries like India is particularly serious. Up-to-date information on local pathogens and drug sensitivity pattern is very crucial to treat patients. This study was done to evaluate the prevalence of Multidrug Resistance (MDR), Extensive drug Resistance (XDR) and Pan drug Resistance (PDR) among multiple gram negative isolates in a tertiary care hospital ICU in North India. Methods: We conducted a prospective observational study. All gram negative culture isolates over a period of 13 months (October 2011 to October 2012) were included in this study. Isolation and identification were performed using the bact alert system and VITEK2 respectively. Sensitivities were determined by Kirby Bauer disc diffusion and broth dilution using VITEK2 -AST cards and interpreted according to clinical and laboratory standards institute (CLSI) criteria.

Results: Among the 250 (n) gram negative isolates, extended spectrum beta lactamase (ESBL) producers were 195(78%) and remaining 55(22%) were non-ESBL producers. Among the ESBL producers, PDR, XDR and MDR isolates were 14(5.6%), 113(45.2%) and 68(27.2%) respectively. Among the XDR positive organisms, 7(6.1%) organisms were New Delhi metallo-beta lactamase-1 (NDM-1) producers and 5(4.4%) organisms were NDM-2 producers. Among ESBL positive isolates, the most predominant isolate was *Klebsiella pneumoniae* (29.7%). Among non-ESBL positive isolates, the most predominant isolate was *Escherichia coli* (34.5%).

Conclusion: ESBL producers were the most frequently isolated gram negative bacterial isolates in this tertiary care hospital in north India. Among ESBL producers, XDR organisms were most frequent followed by MDR and PDR organisms. Few of the XDR isolates were NDM producers which have propensity to spread to other bacteria. In view of significant prevalence of multidrug resistance amongst gram negative organisms in the ICU, regular

surveillance of antibiotic susceptibility patterns plays a crucial role for setting orders to guide the clinician in choosing empirical or directed therapy of infected patients.

P097

USING BEDSIDE ECHOCARDIOGRAPHY IN PEDIATRIC SEPTIC SHOCK FOR FLUID AND INOTROPE TITRATION

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Objective: To report changes in management of fluid-refractory pediatric septic shock based on echocardiograph, and to describe characteristics of septic myocardial dysfunction(SMD). Setting: Two tertiary care PICUs in Chennai and Bangalore Patients: Prospective observational study of 48 patients with unresolved septic shock after 40ml/kg fluid in the first hour. Interventions: Bedside echocardiography(ECHO) and invasive pressure monitoring within six hours of admission to the PICU.

Results: Over a 4 year period, 48 patients with septic shock were fluid-refractory. 21 had cold shock and 27 were warm. The commonest ECHO finding was impaired left ± right ventricular function in 19(39.6%) patients, while 16(33%) had uncorrected hypovolemia. 41 patients(85.5 %) had vasodilatory shock. Following information obtained by ECHO and invasive monitoring, fluid, inotropy and pressors could be titrated more precisely to each patient's circulatory profile. Shock resolved in 46/48 (96 %) and 44 patients (91.6 %) survived to discharge.

Conclusion: Bedside ECHO provided crucial information that was unapparent on clinical assessment and affords a simple non-invasive tool to determine the cause of low cardiac output in patients who remain fluid-refractory. Most patients had vasodilatory shock with echo showing SMD in 40% & uncorrected hypovolemia in 1/3rd. There was no difference in CVP or ScvO₂ values in patients with SMD vs normal heart function. Findings on ECHO allowed adjustment of therapy which was not possible based on clinical examination alone.

P098

EPIDEMIOLOGY OF NOSOCOMIAL INFECTIONS IN AN ICU AT TERTIARY CARE HOSPITAL OF NORTHERN INDIA WITH PARTICULAR REFERENCE TO CRAB (Carbapenem resistant *A. baumannii*)

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Objective: Present investigation was undertaken to know the epidemiology of nosocomial infections (NI), the site of infection, the pathogens involved and their antibiogram from samples of patients in ICU causing nosocomial infections in tertiary care hospital in tier II city of Northern India from period of January 2012 to November 2012, with particular reference to the prevalence of CRAB.

Materials and Methods: Prospective, observational clinical study of the incidence of nosocomial infections, site of infection, pathogens involved and antibiotic resistance profile from a period

of January 2012 to November 2012. CRAB was defined as organism resistant to any three of penicillin, third generation cephalosporin, amino glycosides, fluoroquinolones, monobactam group of antibiotics plus carbapenem.

Results: Of the 258 samples analyzed from ICU over a period of year, a total of 88 positive samples were identified (NI=34%). Gram negative organism accounted for 82%, Gram positive for 11% and fungal for 7% of infections. Respiratory tract (44%), urinary tract (32%) and blood stream infection (24%). Pathogens involved were mainly *Escherichia coli* (40%), *Acinetobacter baumannii* (15%), *Klebsiella* (11%), *Pseudomonas aeruginosa* (11%). All the isolates of *Acinetobacter*, and *Pseudomonas* and 70-80% of isolates of *E. coli*, *Klebsiella* sp. were resistant to third generation cephalosporins. Of all the infections caused by *Acinetobacter baumannii* majority (60-70%) of them were Carbapenem resistant (CRAB).

Conclusions: This study clearly documents a high prevalence of antibiotic resistant nosocomial infections in ICU of tier II cities with respiratory tract being the most prevalent site. Also the incidence of Carbapenem resistant *A. baumannii* (CRAB) is alarmingly high.

P099

PREDICTORS FOR SEPTIC SHOCK FOLLOWING ANASTOMOTIC LEAK AFTER MAJOR GASTRO-INTESTINAL SURGERY: A RETROSPECTIVE STUDY

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Anastomotic leak is a serious complication after major gastrointestinal surgery that considerably increases the mortality and morbidity. Since the progression from anastomotic leak to severe sepsis and septic shock is often rapid and fatal, the early identification of risk factors to this progression may reduce postoperative morbidity and mortality.

The aim of this retrospective study was to determine the predictors for septic shock in patients with anastomotic leak after major gastrointestinal surgery.

All the patients admitted in the gastrosurgical intensive care unit of GB Pant Hospital, New Delhi between September 2009 and April 2012 with anastomotic leak after major gastrointestinal surgery were identified. The ICU charts of the patients were retrieved from the database and an audit was performed to identify the patients who progressed to septic shock. A comparison of the risk factors was made between the patients who developed septic shock against the patients who did not.

Univariate analysis was conducted to determine the potential risk factors for the development of septic shock. The required significant level was set at a $p < 0.05$. A multivariable analysis was used to quantify the respective role of each variable on the occurrence of septic shock.

The study sample comprised of 103 patients with anastomotic leak in the aforesaid period. Sepsis occurred in 90 patients and 72 patients developed septic shock.

Compared with non-septic shock patients, septic shock patients had a higher APACHE II score, lower MAP and higher HR at the time of admission in the ICU. A greater proportion of septic shock

occurred in patients with oesophagojejunal and hepatico-jejunosomy leaks.

Presence of malignancy, COPD, packed RBC transfusion, Bacteremia and hepaticojejunosomy leak were found to be independent predictors of higher mortality and greater length of ICU stay after anastomotic leak.

This is the first study in the literature evaluating the predictors of septic shock following anastomotic leak after major gastrointestinal surgery.

P100

CARBAPENEM NONRESISTANT ACINETOBACTER BAUMANNII INDUCED SEPTIC SHOCK AND ARDS: ROLE OF MULTIPLEX PCR IN DIAGNOSIS AND MANAGEMENT

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Background: Acinetobacter baumannii (AB) is an important cause of hospital-acquired infections, and an uncommon but important cause of community-acquired infections with high mortality. Most hospital isolates are multidrug resistant (MDR).

Objectives: To highlight identification of Carbapenem non-resistant AB by multiplex PCR (SESTTM of Xcyton, Bangaluru) (M-PCR) as etiological agent of septic shock and ARDS and their outcomes. Materials and methods: Case records of ICU patients with severe sepsis or septic shock (from Oct 2010 to Sept 2012) where M-PCR test was utilized were retrospectively analysed to identify patients with Carbapenem nonresistant AB isolation. Their microbiological and clinical profile were examined.

Results: Out of 103 samples from 83 patients (63 bronchoscopic bronchoalveolar lavage (BAL), 34 Blood and 6 CSF) sent for both M-PCR and Bactec Culture (BC), 65 (63%) grew AB. Eleven (10.6%) samples (5 BAL, 4 blood and 2 CSF) from 10 patients identified Carbapenem non-resistant AB by M-PCR (only 6 of them had resistance to 3rd and 4th generation cephalosporins). Simultaneous BC of same specimen did not isolate AB. These patients had a high APACHE IV scores of 72.7 + 30.2 (31-126). Patients were on broad spectrum antibiotics obtaining microbiological results (including Meropenem 5, Imepenem 3, Doripenem 1, Piperacillin-Tazobactam 1). Eight patients survived the index episode of sepsis (72.7%), 5 (50%) were discharged alive, 2 left hospital against medical advice (LAMA) and 3 died before hospital discharge. Three patients had severe ARDS, 2 required proning. All recovered from ARDS, but 2 patients died due to pulmonary embolism (one while still in ICU and one after discharge to ward).

Conclusion: M-PCR was able to identify carbapenem non-resistant AB in 10.6% samples, all were severely ill. In all cases BC missed the diagnosis. Despite not being MDR AB, only half of them survived to hospital discharge.

P101

AWARENESS AND IMPLEMENTATION OF SEPSIS BUNDLE COMPONENTS: A MULTICENTRIC STUDY IN JAMSHEDPUR.

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Introduction: Sepsis resuscitation and management bundles were advocated to deliver focused care in limited time by healthcare providers to sepsis patients. However compliance to these bundle components is low.

Objective: The study is part of an ongoing multi-hospital survey aimed at: 1) evaluating the awareness of sepsis bundle components among doctors and staff nurses of four hospitals in Jamshedpur; 2) finding out the compliance, and 3) identifying the barriers to implementation of these components. Method: A questionnaire based survey was undertaken among the doctors and nurses involved in the management of sepsis patients. The questionnaire was designed to detect the awareness about the components and their actual bedside implementation. It also had an open-ended section to identify possible barriers to implementation.

Results: 34% of healthcare providers admitted that they were unaware of the sepsis resuscitation and management bundles. Lack of adequate manpower as the most important barrier was identified by 36% as the most important barrier, while 29% identified non-clinical responsibilities as important barrier. Among the other barriers identified were lack of awareness about bundle components, investigations not being available on time, and too many patients in too less time, in that order.

Conclusion: Lack of awareness about bundle components remain a problem in our set up. Lack of adequate staff and doctors in wards and ICUs and non-clinical commitments have been identified as the leading barriers.

P102

CATHETER RELATED BLOOD STREAM INFECTIONS (CRBSI) IN CRITICAL CARE SET-UP; ROLE OF CHLORHEXIDINE IMPREGNATED SPONGE AT THE ENTRY SITE OF CVC IN PREVENTING INFECTION.

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Although percutaneous devices are mainstays of modern health care delivery, the devices disrupt the primary barrier of infection, the intact epithelium. Most device related infections results when a critical microbial inoculum stimulating overwhelming local host defences are reached. It is well established that infection caused by implants are resistant to antimicrobials. Phagocytic functions of resident neutrophils are deficient in the presence of a foreign body and effective treatment often necessitates removal of the device. Chlorhexidine is a broad spectrum antimicrobial agent of low toxicity and skin irritancy and sensitization potential. The rapid electrostatic attraction of cationic chlorhexidine molecule & the negatively charged bacterial cell contributes to rapid kill rate.

Aims: This study was conducted to determine the incidence of

central venous catheter-related infections (CRIs) in a control group of patients and in an experimental group where every CVC insertion site was covered with a chlorhexidine impregnated sponge and to identify whether chlorhexidine sponge had a significant role in reducing or preventing CRBSI.

Settings and Design: This is a prospective, ongoing, observational study carried out in the Intensive care unit (ICU) and the data presented here is over a period of 7 months from March to September 2012.

Materials and Methods: A total of 94 patients with indwelling central venous catheters of age group between 20 and 75 years were included. The site assessment was not possible with the dressing in place hence assessment was done by palpation method for pain and swelling. The dressing aided in securing the catheter and absorbed wound tract drainage. Semi permeable nature of matrix allowed fluid transport. Duration: the catheter remained in place until they were no longer needed or when a CVC related infection was suspected. The catheter was secured by two skin sutures. Chest X-Ray was done routinely after the line insertion. The catheters were cultured using the standard semiquantitative culture (SQC) method. Statistical analysis used SPSS-10 version statistical software.

Results: Only 1 patient in each group, i.e., the experimental and the control group developed growth of organisms, (both *Klebsiella* spp.) in the CV Catheter tip, but none developed growth of organisms in blood culture.

Conclusion: This is an ongoing study and final conclusion will be presented in the conference along with the inference gathered.

P103

STUDY OF THE CASES OF HYPONATREMIA IN CRITICAL CARE - ETIOLOGY AND ITS RESPONSE TO VASOPRESSIN RECEPTOR 2 ANTAGONIST

(TOLVAPTAN) IN SELECTIVE CASES

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Objectives: To obtain the common causes of hyponatremia among patients who are being managed in hospital setting in ITU and effect of tolvaptan (a competitive vasopressin receptor 2 antagonist) and demonstration of its comparative effectiveness in correcting serum sodium in selective cases.

Materials and methods: A prospective observational study design was used to collect data in symptomatic patients who required admission for hyponatremia in ITU. Data from patient chart was collected throughout the hospital stay from admission to discharge and consequent follow up and entered into the case report file. Patient data was collected in a span of 6 months. From a total of 84 cases of hyponatremia only 22 patients were qualified for the Tolvaptan response study. Among these 50% of the cases were given Tolvaptan and the rest got placebo. Everyday serum sodium was measured for both the groups. Initial profiling and statistical methodology were prepared on the serum sodium level for both the groups.

Results: As per the causes of hyponatremia are concerned, Diuretic induced (14%) and Hyperglycemia (14%) were the most common, followed by Pseudohyponatremia (13%). Statistical results showed that the serum sodium level increased significantly and thereby patients' symptoms after giving Tolvaptan at a dose of 15 ml/day compared to the other group.

Conclusion: This study adds valuable information regarding the etiology of hyponatremia in patients admitted in ITU which we face in our daily practice and an unique opportunity to judge the response of vasopressin receptor 2 antagonist (Tolvaptan), a comparatively newer agent used in selected cases in real world conditions.

PEDIATRIC PAPER SESSIONS: ORAL

Cardiovascular & Hemodynamics: PD1-PD2 PD1

COMPARISON OF SUPERIOR VENA CAVAL OXYGEN SATURATION AND FEMORAL BASED OXYGEN SATURATION IN CHILDREN WITH FLUID REFRACTORY SEPTIC SHOCK

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Objective: Our objective was to evaluate the agreement between S_{fvo2} and S_{cvo2} after initial fluid resuscitation in children with fluid refractory septic shock.

Methods: We enrolled 10 children who were referred to our pediatric intensive care unit (PICU) with a femoral catheter in situ (placed in the emergency department) and had subclavian/IJV catheter inserted in the PICU immediately upon arrival. The two catheters were left in place for a period of 6 hours after which the femoral vein catheter was removed. Two sets of paired blood samples from both the catheters were drawn simultaneously at three time points i.e. after 1 and 6 hr of initiation of fluid resuscitation and were analyzed using radiometer ABL 800 co-oximeter.

Results: Although there was no significant difference between the mean S_{cvo2} and S_{fvo2} values at the end of 1st or 6th hr of resuscitation, there was poor agreement between the two saturations at 1 hour after fluid resuscitation with a mean difference of 2.7% and limits of agreement being -25.5 to 30.9. The agreement between the two values however, improved with time. Out of five children who had S_{cvo2} ≤ 70% at 1 hr after resuscitation, S_{fvo2} correctly identified only two children (40% sensitivity); of the five children who had normal S_{cvo2}, only four had S_{fvo2} of >70% after 1 hr (80% specificity).

Conclusion: Given the poor agreement and low sensitivity of S_{fvo2} at the end of first hour of fluid resuscitation, one cannot rely on S_{fvo2} values as a therapeutic end point in early goal directed resuscitation of children with septic shock.

PD2

EFFECT OF PRE OPERATIVE SEPSIS ON POST OPERATIVE OUTCOME OF PAEDIATRIC CARDIAC SURGERY PATIENTS

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Objective: To investigate the effect of preoperative infection on postoperative outcome in paediatric cardiac surgery patients.

Materials and methods: A retrospective analysis was made of children who underwent congenital heart surgery in our hospital between June 2012 to December 2012 and had preoperative indicators suggesting sepsis which included clinical variables like fever, respiratory symptoms, mechanical ventilation along with positive laboratory findings of infection, which were defined as presence of leukocytosis (>12,000/mL), high C-reactive protein

levels (>10 mg/L), raised PCT, positive blood and urine cultures. Study patients (group A, n = 50) identified from the preoperative data were compared to age matched control patients (group B, n = 50) who did not have any clinical or laboratory evidence suggestive of infection. Postoperative data included fever, requirement and duration of inotropic support, duration of mechanical ventilation, length of ICU and hospital stays along with laboratory parameters.

Results: 1: Study group patients had increased length of stay in ICU, duration of fever, duration of mechanical ventilation, extubation failures and requirement of inotropic support as compared to the control group. (P<0.05). 2: Laboratory parameters were significantly deranged in study group post cardiac surgery than control group: PCT (7.27 ng/ml + 4.38) against (1.16 ng/ml + 0.47), HSCRP (>10 mg/L) 70% as against 30% along with significant increase in patients with raised TLC and thrombocytopenia in study group (P<0.05).

Conclusion: Preoperative septicemia is associated with significant increase in morbidity in congenital heart disease patients and its optimal control prior to surgery will improve outcome post surgery.

Endocrine: PD3

PD3

A STUDY OF ABNORMAL BLOOD GLUCOSE LEVELS AND ITS CORRELATION WITH OUTCOME IN CHILDREN ADMITTED TO PEDIATRIC ICU.

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Objectives: Hypoglycemia or hyperglycemia is associated with poor outcome in critically ill adult patients. This study was done to study abnormal blood glucose levels and correlation with outcome in children admitted to PICU.

Material & Methods: 100 consecutive patients (1 mo-18 yrs, >24 hrs stay) were prospectively studied. Patients were categorized normoglycemic (random blood sugar 60-150 mg/dl), hyperglycemic (> 150 mg/dl), and hypoglycemic (< 60 mg/dl). Diabetic children were excluded.

Results: Mean age of the patients was 51 months (male to female ratio of 2.3: 1). At admission 12 patients had hypoglycemia, 21 had hyperglycemia. During ICU stay, 12 children had hypoglycemic records, 25 had hyperglycemia, 11 had both hypo and hyperglycemic records and rest 52 remained normoglycemic. Three patients with persistent hyperglycemia needed insulin. 28 patients required inotropes, among these abnormal glucose levels was recorded in 57% patients (p 0.56). 47 patients needed ventilatory support, of whom 34% had hypoglycemic records; 53% hyperglycemic records (p<0.001). 25 patients had nosocomial sepsis; one-fourth had hyperglycemia (p 0.79). PRISM score was not significantly different in normoglycemic vs abnormal glucose level patients (p 0.1837). Mean duration of ICU stay in patients with normoglycemia was 5.3 days, compared to 12.1 days in patients with abnormal blood sugar records (p 0.002). 15 patients were discharged against medical advice and 5 died out of whom 80% had abnormal records (p 0.05).

Conclusions: Nearly half of patients admitted to PICU had

abnormal blood glucose levels. Patients with abnormal blood sugar records had longer duration of ICU stay and mortality.

Nephrology: PD4

PD4

OUTCOME OF AKI ACCORDING TO PRIFLE CRITERIA IN RELATION TO PRISM 2 SCORE.

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Aims: To study the clinico-etiological profile of Acute Kidney Injury (AKI) with according to pRIFLE criteria and correlate its outcome in relation to PRISM 2 score. Setting: Hospital based prospective study.

Methods: This study was conducted in Pediatric Intensive Care Unit of Dayanand Medical College & Hospital, Ludhiana over one year. All patients with renal dysfunction between age of 1 m - 15 yrs were included. History, physical examination and investigations of cases were entered in a set performa and managed accordingly. Renal dysfunction was graded according to pRIFLE criteria and results in relation to PRISM 2 score analyzed.

Results: Fifty three cases of AKI were included with M:F ratio of 1.65:1. Common causes of AKI were sepsis (42%), acute diarrheal disease (ADD) (9.4%) and hepatic encephalopathy (HE) (7.4%). Maximum cases were seen in < 1 year group (34%), in which sepsis and ADD were common causes. Patients with ADD, HE, Head injury, Diabetic Ketoacidosis were seen in Risk/ Injury group where as patients with Malaria, Pigmenturia, Tubulointerstitial nephritis, PSGN were seen in FAILURE group. Sepsis was seen in all three groups. Eighty percent of cases were treated conservatively. Patients with Sepsis and HUS required dialysis compared to other etiologies. Patients with RISK group had shorter PICU stay (4.1 days) compared to FAILURE group (5.1 days). Patients in RISK group had better survival (70%) compared to FAILURE group (47%).

Conclusions: pRIFLE score is an important tool to grade severity of renal dysfunction and to predict outcome in patients with AKI.

Neurology: PD5

PD5

A COMPARATIVE STUDY OF JAMES ADAPTATION OF GLASGOW COMA SCALE AND SIMPLER BLANTYRE COMA SCALE IN NON VERBAL INFANTS IN PEDIATRIC ICU: WILL SIMPLIFICATION HELP

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Objective: to evaluate the predictive power of each individual component of James adaptation of Glasgow Coma Scale (MGCS) (Range 3-15) and a simpler Blantyre coma scale (range 0-5) in relation to mortality, morbidity and functional status in infants.

Method: Both scales were recorded for all infants (>28 days to <1 year of age) at the time of admission and Their Functional Status Score (FSS) at the time of discharge from PICU for one year. Two

scales were compared using Receiver Operating Characteristic Curve (ROC) and calculating the area under the curve (AUROC) with regards to mortality, functional outcome and morbidity.

Results: Total 92 infants were evaluated (male to female ratio 4.5:1). Median age at admission was 3 months. Mortality was 10.3%. Major systems involved were respiratory (36%), Central Nervous (21%), cardiovascular (12%). For MGCS, Motor response score was better than verbal and eye for predicting requirement of inotropic support ($p=0.025$), longer hospital stay and ventilator support ($p=0.032$ and 0.025 respectively). But when simplified to 3 ranked score, verbal response of BCS had significantly lower AUROC than total score (mortality, inotropic support and ventilatory support $p=0.001$, 0.0007 and 0.002 respectively). There was no significant difference in both scales in predicting mortality ($p=0.768$), use of inotropic support ($p=0.400$) and ventilatory support ($p=0.894$) when total score were compared. Both initial MGCS and BCS had significant correlation with Functional Status Score, which determines immediate outcome at discharge ($p=0.0001$ and $p=0.001$ respectively).

Conclusion: Motor response is the most sensitive parameter amongst all the components of GCS correlating significantly better than others for predicting morbidity. BCS is a simpler, easy to use coma scale and has good predictive power for outcome, being a simpler scale, it can replace MGCS in emergency department evaluation but the verbal component of BCS is needed to be revised.

Nutrition: PD6

PD6

RISK FACTORS FOR DEATH IN SEVERELY MALNOURISHED UNDER-FIVE CHILDREN PRESENTING WITH SEVERE/VERY SEVERE PNEUMONIA IN AN URBAN CRITICAL CARE WARD IN A DEVELOPING COUNTRY

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Objective: We evaluated the factors associated with death in under-five children who were hospitalized for the management of pneumonia and severe acute malnutrition (SAM).

Methods: In this unmatched case-control design, SAM children of both sexes, aged 0-59 months, admitted to the Dhaka Hospital of the International Centre for Diarrhoeal Disease Research, Bangladesh (icddr,b) with radiological pneumonia during April 2011 to July 2012 were studied. SAM children with pneumonia who had fatal outcome constituted the cases ($n=35$), and randomly selected SAM children with pneumonia who survived constituted controls ($n=105$).

Results: The median age (inter-quartile range) was comparable among the cases and the controls [8.0 (4.9, 11.0) vs. 9.7 (5.0, 18.0); $p=0.210$]. In logistic regression analysis, after adjusting for potential confounders such as vomiting, abnormal mental status, and systolic hypotension (<70 mm of Hg) even after correction of dehydration or in absence of dehydration, severely malnourished under-five children with pneumonia more often had hypoxemia (OR=23.15, 95% CI=4.38-122.42, $p<0.001$), clinical dehydration (some/severe) (OR=9.48, 95% CI=2.42-37.19, $p=0.001$), abdominal

distension (OR=4.41, 95% CI=1.12-16.52, $p=0.028$) at admission and received blood transfusion (OR=5.50, 95% CI=1.21-24.99, $p=0.027$) for the management of crystalloid resistant systolic hypotension (<70 mm of Hg).

Conclusion: Hypoxemia, clinical dehydration, and abdominal distension are the independent predictors of death in SAM children with pneumonia. SAM children with pneumonia who requires blood transfusion for the management of crystalloid resistant systolic hypotension are at risk of death. There thus, early identification and prompt management of these simple clinical predictors of death and simultaneously discourage the use of blood transfusion for the management of crystalloid resistant systolic hypotension may help to reduce morbidity and deaths in such population.

Others: PD7-PD8

PD7

KNOWLEDGE OF PULSE OXIMETRY AMONG HEALTH CARE PROVIDERS' WORKING IN PEDIATRIC SETUP

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Objective: Measure knowledge of pediatric nurses about pulse oximetry technology, Measure knowledge of pediatric nurses regarding pulse oximetry and the ability to apply it in a given clinical scenario.

Materials and Methods: A descriptive study was carried out on 60 nurses working in Pediatric units of B. P. Koirala Institute of Health Sciences, Dharan, Nepal. The subjects were recruited through census sampling from selected wards. Data were collected using semi-structured questionnaires. Descriptive statistics and chi square techniques were employed for analyzing data.

Results: It was found that 84% of the nurses felt they require adequate training; 84% correctly identified what a pulse oximeter measured; 40% correctly identified how a pulse oximeter worked, but only 5% had a correct understanding of the oxyhemoglobin dissociation curve. Nurses identified a wide range of normal arterial oxygen saturation values and made numerous errors in evaluating saturation readings in hypothetical clinical situations.

Conclusions: Although the majority of pediatric staff felt need of training and knowledgeable about pulse oximetry, there was a lack of knowledge of basic principles. The results of this study have implications for basic professional education programs and the orientation and ongoing education of pediatric health care providers.

PD8

INCIDENCE OF CENTRAL VENOUS CATHETER RELATED INFECTIONS IN PEDIATRIC INTENSIVE CARE UNIT

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Objectives: To study the incidence of central venous catheter

(CVC) related infections in PICU, associated risk factors and final outcome.

Material and Methods: This prospective study was done in a 10 bedded PICU of a tertiary care hospital over 1 year. Subjects included were between the age of 1 month to 15 years who had CVC inserted for more than 24 hours. Catheter tips were sent for culture in all patients and blood culture was sent in all suspected CRBSI cases.

Results: 70 patients were enrolled in the study. The mean age of patients was 2.79 years with male-female ratio of 2.8:1. Rate of Catheter related blood stream infection (CRBSI) was found to be 2.9% (3.95/1000 central line days). Rate of CVC colonization was 15.7 % (21.7/1000 central line days). 5 Organisms isolated from CRBSI cases were *Pseudomonas aeruginosa* and *Candida tropicalis* whereas *Staph aureus* and *Candida* were common organisms from catheter tip. Femoral CVCs were inserted in more patients (91.4%) than IJV catheters (8.6%). No significant difference was found in CRBSI and CVC colonization with regard to type/site of CVC, number of lumens and initial PRISM score. Malnutrition and CVC duration (>10 days) were significant risk factors for CRBSI. Mean duration of stay in CRBSI cases was 23 days compared to 15 days in non-CRBSI. Mortality was 50% in CRBSI cases and 10.3% in non-CRBSI cases.

Conclusion: The study shows a low incidence of CRBSI rate in our PICU irrespective of the site of insertion. It also highlights underlying malnutrition and duration of catheterization as two major risk factors for CRBSI.

Sepsis: PD9-PD13

PD9

MICROALBUMINURIA - A NOVEL MARKER FOR DETERMINING OUTCOME IN CRITICALLY ILL PEDIATRIC PATIENTS

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Objective: To study the prevalence and predictive value of microalbuminuria in critically ill children study site-12 bedded picu of tertiary care hospital study design-prospective non-interventional study

Subjects and methods: Of 1052 consecutive pediatric patients admitted in picu 455 were included for the study.

Exclusion criteria for study- age <28 days or >16 years, picu stay <24 hours, menstruating female child, patients with kidney disease, hypertension, diabetes, children on immunomodulator, chemotherapy drugs. Spot urine samples were collected on admission, 12 hours and 24 hours. urine albumin:creatinine ratio (acr) was measured on picu admission (acr1), 12 hours (acr2) and after 24 hours (acr3). On admission patient demographics were noted along with disease severity scoring prism, pelod scores were calculated. Each patient was followed up throughout their hospital stay and outcome data picu stay and survival was obtained.

Results: Of the 455 patients, 396 survived while 59 patients died in picu. non-survivors had significant higher median acr3 (134.98 {iqr 58.8-480.53}) in comparison to the survivor who had median acr 71.02 (iqr 24.7 - 168.1) ($p < 0.0001$) in a receiver operating

characteristic curve(roc)analysis, acr3 emerged as the best indicator of mortality [(area under curve (auc) of acr3 = 0.68 > auc (acr2) =0.59 > auc (acr1) =0.57]. At a cutoff of 195 , acr3 had a sensitivity of 47.5%,specificity of 79.5%, positive predictive value of 25.5% and a negative predictive value of 91% for predicting mortality in critically ill pediatric patients.

Conclusion: absence of significant microalbuminuria at 24 hours of picu admission may help to predict survival in the picu.

Key words: Microalbuminuria, Mortality, Critically ill pediatric patients, Severity of illness, Pediatric intensive care units, Outcome

PD10

TO STUDY PROCALCITONIN KINETICS IN PEDIATRIC PATIENTS WITH OPEN HEART SURGERY AND ITS SIGNIFICANCE TO DISCRIMINATE BETWEEN SEPSIS AND SYSTEMIC INFLAMMATORY SYNDROME

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Objective: To evaluate procalcitonin kinetics as marker of inflammation severity and its specificity in discriminating between sepsis and systemic inflammatory response syndrome after pediatric open heart surgery. Design : Prospective ,observational, clinical study in 17 bedded tertiary pediatric intensive care unit.

Materials and methods: PCT kinetics was evaluated at 1,3 and 7th day in thirty pediatric patients undergoing open heart surgery with cardiopulmonary bypass (CPB) (SIRS model :group 1,n = 15) and patients with clinical sepsis (SIRS + Sepsis, Group 2,n=15) . Postoperative data included fever, requirement and duration of inotropic support, duration of mechanical ventilation, length of ICU and hospital stays along with laboratory parameters.

Results: In Group 1, PCT median concentration was 0.24 ng/ml(reference value <2.0 ng/ml).Average PCT concentration was 0.47 ng/ml at 24 hours; 0.33 ng/ml at 72 hours and then decreased to 0.12 ng/ml at 7th postoperative day.All patients had favourable outcome. In Group 2, average PCT was 1.02 ng/ml at 24 hours which increased to 4.15 ng/ml at 72 hours. It decreased in 12/15 patients who progressed favourably (average 0.61 ng/ml) .6/15 patients had culture positive septicemia. 2/3 patients with persistent elevated PCT at 7th postoperative day expired .

Conclusion: PCT kinetics is able to differentiate between SIRS and postoperative infection(sepsis) during postoperative follow -up period.. PCT concentration varied with the evolution of sepsis.

PD11

PREDICTORS OF DEATH IN UNDER-FIVE CHILDREN WITH SEPSIS ATTENDING AN URBAN DIARRHEAL TREATMENT CENTRE IN BANGLADESH

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Objective: To evaluate the clinical and laboratory predictors of death in under-five children with clinically defined sepsis presenting with diarrhea.

Materials and methods: We prospectively enrolled all the diarrheal children (n=151) aged 0 to 59 months with clinical sepsis admitted in the SCW during September`2007 through December`2007. Comparison was made between deaths (n=23) and survivors (n=128). Sepsis is defined as presence of inflammation [abnormal WBC count (>12x10⁹/l or, <4x10⁹/l or, band and neutrophil ratio ≤ 0.10] plus presence or presumed presence of infection with thermo-instability [hypothermia (≤ 35.0o C) or hyperthermia (≥ 38.5o C)], tachycardia and/or the indications of altered organ function (altered mental status and bounding pulse) in the absence of clinical dehydration or after correction of dehydration.

Results: The median age (inter-quartile range) of the children who survived and died were 4.0 (2.0, 12.0) and 1.5 (0.8, 10.0) respectively. In the logistic regression analysis, after adjusting for potential confounders, such as abnormal WBC count, use of intravenous fluid, patient with fatal outcome more often presented with hypernatremia (odds ratio = 16.48, 95% confidence interval = 2.21-123.12; p = 0.006), lobar consolidation (odds ratio = 19.9, 95% confidence interval = 2.99 - 132.80; p = 0.002), hypoxaemia (odds ratio = 14.78, 95% confidence interval = 1.38 - 157.90; p = 0.026) and severe acute malnutrition (odds ratio = 7.57, 95% confidence interval = 1.24 - 46.11; p = 0.028).

Conclusion: Our data suggest that children under-five with clinical sepsis who present with lobar pneumonia, hypoxaemia, severe acute malnutrition and hypernatremia are at higher risk of death and identification of these factors may help clinicians to take prompt initiative for the aggressive management of such children especially in a resource-limited setting like Bangladesh.

PD12

INCIDENCE OF BLOOD STREAM INFECTION AND ANTIBIOTIC SUSCEPTIBILITY PATTERN IN ADULT VS PAEDIATRIC ICU

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Objective: Patient characteristics in adult vs pediatric ICU suggest the pattern of blood stream infections experienced may differ in these groups.

Methods: Data was collected from pediatric and adult ICU (Jan-Jun 2012) using standard surveillance protocol.

Results: Total 1513 blood cultures were sent, 168 from children and 1345 from adult patients. Blood stream infections were more in adults (18.7%) compared to pediatrics (15.47%). Klebsiella (19.04%) and Acinetobacter (19.04%) were the most common isolates in adult and Klebsiella (26.92%) was commonest isolate in children. Other common isolates in children were Acinetobacter (11.53%), candida (11.53%), E.coli (11.53%), pseudomonas (11.53%) and in adults were Staphylococci aureus (16.66%) and candida (13.5%). Fungal infections were more common in adults (13.5%) than in children (11.5%). Nearly 90.4% Staph aureus was Methicillin resistant in adults compared to 50% in children. Enterococcus faecium was Vancomycin resistant in 12.5% adults, but no VRE was seen in children. E.Coli isolates were more sensitive to carbapenems in pediatric (100%) versus adults (43%).

Acinetobacter had maximum sensitivity to tigecycline and colistin in both adults and children. For Klebsiella isolates 100% sensitivity was seen to tigecycline in both groups and carbapenems sensitivity was more in adults (45.5%) compared to children (14%). Fungal organisms in both groups were all sensitive to fluconazole.

Conclusion: Blood stream infections in ICU are more common in adults compared to children. Antibiotics resistant organisms are increasing in ICU but more in adults compared to children. Klebsiella and Acinetobacter isolates are more resistant to carbapenems in children compared to adults.

PD13

EXPERIENCE WITH PENTAGLOBIN (IgM enriched IMMUNOGLOBULIN) IN A GROUP OF INFANTS WITH SEPSIS POST CARDIAC SURGERY

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Background: Sepsis is a major cause of end organ dysfunction and mortality after complex cardiac surgery in neonates and infants despite appropriate antibiotic regimens. IVIG are frequently used as an adjunctive therapy in critically ill infants as they have deficient immunoglobulin levels, compounded by cardio pulmonary bypass (CPB) induced immuno suppression.

Objective: The study intends to evaluate the efficiency of Pentaglobin (IgM enriched Immunoglobulin) (PG), as adjunctive

therapy for severe sepsis in infants post cardiac surgery. The objective was to assess reduction in the sepsis induced mortality and to identify the improvement of clinical and laboratory parameters such as the total leucocyte count (TLC), platelet count, biomarkers, haemodynamics, respiratory parameters, metabolic acidosis, urine output, coagulation profile, feed tolerance and neurologic status. Design & Setting Retrospective study in a 17 bedded PICU in a tertiary referral centre.

Methods and Results: Fourteen infants with sepsis in the postoperative period after cardiac surgery between January and November 2012 were included in the study. Except one, the rest 13 underwent complex surgery with prolonged CPB. PG was started in children with clinical/laboratory confirmed sepsis with persistent low TLC and thrombocytopenia, haemodynamic instability, despite receiving empirical broad spectrum or sensitive antimicrobials for 72 hours. Seven patients showed improvement in clinical parameters; decline in biomarkers and overall clinical status. Seven patients died of which two were acute deaths due to multidrug resistant (MDR) sepsis and 3 had residual cardiac or respiratory illness. Two sudden deaths were reported after discharge from the ICU.

Conclusion: While the intravenous PG did not significantly reduce the mortality rate in study population, it did improve survival rate of those with severe sepsis. Further studies are necessary to identify the group of patients who might benefit maximum from immunoglobulin therapy and ascertain on timing of initiation of the therapy