

Elderly in the ICU

Ganshyam Jagathkar 

Received on: 15 February 2023; Accepted on: 15 February 2023; Published on: 28 February 2023

Keywords: Acute physiology and chronic health evaluation II, Chronic obstructive pulmonary disease, Elderly, ICE-CUB, Intensive care unit, Renal replacement therapy, Simplified acute physiology score, Very old intensive care patients 2 study outcomes.

Indian Journal of Critical Care Medicine (2023): 10.5005/jp-journals-10071-24422

Intensive care across the world is seeing a major change in patient demographics, with a consistent rise in the number of elderly (>65 years) being admitted to the intensive care units (ICUs) and this number is likely to increase significantly in the coming future.¹ However, advanced age and the associated geriatric syndromes – multiple-morbidity, frailty, psychosocial issues, cognitive decline, the limited activity of daily life, etc., pose unique challenges in managing these patients. Added to these are the ethical dilemmas of whether these patients should be offered admission to the ICUs, considering a constraint on resources and the high probability of poor outcomes in terms of mortality and post-discharge quality of life. Traditional scoring systems like the acute physiology and chronic health evaluation (APACHE) and simplified acute physiology score (SAPS) are poorly calibrated to the elderly ICU population, as such, most of the triaging about admitting the very old is largely based on clinical and subjective judgment.²

Physiologically, the aging process is associated with a gradual decline in organ function which predisposes the elderly to injury and disease as well as poor recovery from hospitalization. Unique to the elderly are the “geriatric syndromes”, of which the most commonly encountered are the multi-morbidity, sarcopenia, cognitive decline, and frailty. The very old intensive care patients (VIP) 2 studies which included about 3920 patients highlighted the incidence of geriatric syndromes.³ Among the multiple factors influencing postdischarge outcomes in the elderly, frailty seems to be playing a major role. Observational studies reported a frailty of 30% among older patients admitted to the ICUs.⁴ Frailty is characterized by a decline in the biological reserves and homeostatic mechanisms and is determined by the interplay between genetics, environmental factors, and comorbidities. Though age is a risk factor, frailty is not inherent to aging and increases the vulnerability of the elderly to new stressors. Studies have shown frailty to be an independent predictor of both short-term and long-term outcomes.^{4,5} Post-ICU decline in physical health and the need for long-term care facilities is higher in patients who had prehospital frailty.^{4,6,7}

Though ICU or hospital survival has always been the most common endpoint of ICU trials, the importance of long-term survival and post-discharge quality of life is now a well-accepted outcome parameter to assess critical care interventions. The in-hospital mortality is determined by the underlying disease severity and can be predicted by the severity scoring systems, but the long-term outcomes are influenced by the underlying conditions like age, functional status, and comorbidities (Chronic obstructive pulmonary disease, malignancy, etc.). Mukhopadhyay in their study found that the in-hospital, as well as the long-term

Department of Critical Care, Medicover Hospital, Hyderabad, Telangana, India

Corresponding Author: Ganshyam Jagathkar, Department of Critical Care, Medicover Hospital, Hyderabad, Telangana, India, Phone: +91 9949001344, e-mail: drganshyam@gmail.com

How to cite this article: Jagathkar G. Elderly in the ICU. *Indian J Crit Care Med* 2023;27(3):157–158.

Source of support: Nil

Conflict of interest: None

mortality was higher in the elderly group as compared to the non-elderly and the post-discharge mortality was 2.3 times more compared to the general population of a similar age-group.⁸ The intensive care unit (ICU) admission decisions in the elderly (ICE-CUB2), a cluster randomized trial of 3036 critically ill elderly patients (>75 years), failed to demonstrate long term benefits in terms of mortality, functional status, or quality of life.⁹ Elderly survivors have been shown to suffer from cognitive impairment, long-term sequelae, functional disability, and poor quality of life.¹⁰ Studies have shown that a good number of elderly survivors had a significant decline in their functional capabilities limiting their ability to perform activities independently.

Looking at the clinical outcomes of the elderly admitted to the ICU, the authors highlight certain important findings. In their study, the authors found that age *per se* was not a significant factor influencing the outcomes, however the acute physiology and chronic health evaluation (APACHE II) score and the use of mechanical ventilation, vasopressor support, and renal replacement therapy (RRT) were significantly associated with increased mortality.¹¹ Mukhopadhyay and colleagues also found an independent association between mechanical ventilation, vasopressor use, neurological disease, mortality prediction score II, and an increase in hospital mortality.⁸ The authors also highlight the high incidence of pneumonia and gram-negative sepsis in the elderly, which can be explained by their decrease in the physiological reserves and altered immune function. However, the post-discharge follow up and outcomes in terms of long-term survival and quality of life were not reported. Post-discharge care of the elderly may need specialized inputs from geriatrics, and psychosocial and physical rehabilitation which could pose a significant burden on the families both emotionally and financially, and these things cannot be ignored in a country like India, where these areas are still in a nascent stage.

As the burden of caring for the elderly is likely to increase in the future, one needs to plan the infrastructure as well as the expertise needed to take care of these patients. Triaging the elderly into the ICU is going to be a difficult task due to the lack of validated scoring systems predicting outcomes in this population. Hence decisions have to be taken considering the comorbidities, frailty, and concurrent illness requiring admission. Not only the short-term survival but the impact of the critical illness on the post-discharge quality of life and dependence has to be discussed with the patient and families before offering ICU care as this influences 6-month mortality for the elderly ICU survivors.¹² In situations where such decisions cannot be made in the ER, a time-based approach has been suggested. Time-limited treatment trials (TLT) can be discussed with the family where full intensive care support is offered to the patients for a specific time period (2–4 days) and progress is reviewed.¹³ A new objective evaluation can be done based on serial assessments of organ function and depending on the progress decision about the continuity of full intensive care vs palliative care can be taken.¹³

In the absence of established evidence-based guidelines in the management of critically ill elderly,¹⁴ coupled with the lack of trained specialists and paramedical staff with respect to the specialized needs of the elderly, managing these patients can be very challenging. The involvement of the geriatrician early on from admission to post-discharge follow-up should be emphasized as the general intensivist may not be well versed with the geriatric principles of management. Studies have shown that incorporating geriatric principles in the acute care of the elderly can improve outcomes in terms of decreasing physical decline, hospital length of stay, falls, delirium, and cost.¹⁵ Similarly, establishing geriatric ICUs or acute care units and wards would help individualize care to the specific needs of these patients. Focus on comprehensive geriatric rehabilitation involving nutritional, physical, and psychosocial parameters can help restore or enhance functional capabilities.¹⁶

In conclusion, the demographic change across the world is likely to attract more and more elderly patients to the hospital and the ICU, increasing the demand for specialized geriatric care across specialties. The physiologic changes of aging affecting multiple organs along with comorbidities, frailty, and psychosocial difficulties place these patients uniquely requiring a multidisciplinary approach involving geriatricians. Although short-term survival is important, the long-term outcomes in terms of survival, physical independence, quality of life as well as cost implications need to be kept in mind. It is important that patients and their families are counseled and discussed the overall outcomes, which may help in prioritizing and individualizing the needs of the critically ill elderly.

ORCID

Ganshyam Jagathkar  <https://orcid.org/0000-0001-9116-2096>

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