EDITORIAL

Age as Maestro or Solo Instrument in Opera of Death

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Because of advances in critical care medicine and increased life expectancy in some countries, the number of elderly people admitted to critical care units has increased in the last couple of decades. Currently, the median age of intensive care unit (ICU) patients is more than 65 years in most countries.[1] ICU has a finite number of beds and resources, and it consumes a considerable amount of hospital expenditure. The growing burden of the elderly population occupying ICU beds needs some robust strategies or algorithms that optimally utilize this limited facility with the best patient-centered outcome. Distributive justice is one of the pillars of medical ethics. Rationing ICU resources means not everyone will get every service they need, want, or even deserve, when resource constraints are present. Rationing should be based on patient and/or relative wishes along with an objective assessment of the patient. Denial of ICU admission or limitation of treatment just based on the number, i.e., age, is quite debatable.[2] Despite this burning concern, this area is still in need of research in view of the scarcity of data.

In correctly selected acutely ill elderly patients, right treatment at the right time modifies the outcome. The identification of such elderly patients, who will benefit most from ICU admission and life-sustaining therapies (LSTs) to optimally utilize limited resources is the key. Identifying variables/factors to predict poor outcomes will help the physician to communicate with the patient and the family, in further decision-making. None of the current scoring systems/models are sufficiently credible or extensively validated to use in elderly patients.[3] None of the models or scoring systems can predict the outcome of an individual level (they represent the outcome of cohort).[4] It is debatable whether age alone can be enough as an independent predictor to predict the outcome, or whether other factors (with age as modifier) should be taken into account before decision-making. Aging is a complex transition where healthy adults turn into frail ones with a decreased physiological reserve and increased vulnerability to disease, both of which can lead to death. It is essential to understand that chronological age is not the same as biological age, and there is no consensus definition of aging. But patients with age more than 65 years are considered as elderly, while patients admitted to ICU older than 80 years should be identified as very old intensive care patients.[1,5] It is seen that with increasing age the number of comorbidities per patient also increases.[6] It is also seen that comorbidities are associated with increased mortality, loss of physical independence, and increased hospitalization rate.[7,8] Malnutrition and cognitive dysfunction are also very prevalent in this group, responsible for poor outcomes.[1] It is crucial to understand that age and reduction in functional reserve of the body are closely related and making the patient vulnerable to diseases. Frailty is the state of increased vulnerability strongly associated with age, but not limited to elderly people only. Younger people with multiple comorbidities can have high frailty.[9]

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One prospective trial showed that frailty has a linear correlation with mortality.[10] Clinical frailty scale ≥5 and modified frailty index ≥3 are associated with poor outcome.[11,12] Poor premorbid functional status (PFS) is associated with death in ICU in elderly patients. Although frailty, comorbidities, functional independence are different concepts, there is a considerable overlap.[13] Apart from age, comorbidities, frailty, and PFS; disease severity, admission diagnosis, and type of admission (acute vs elective, surgical vs medical) should be considered in decision-making. Demographic consideration, ethical issues, socioeconomic concerns play a pivotal role along with physiological issues. Patient wishes and relative expectations should be balanced with objective analysis of outcome.

In most of the trials done on elderly people, short-term mortality and length of hospital stay were targeted. But it is also essential to find out other outcome variables such as long-term mortality, disability, functional independence, and quality of life after discharge from ICU. Taking mortality as the primary outcome has multiple limitations, as it is affected by numerous factors (heterogeneous outcome), intervention timing (early vs late), heterogeneity in population or cohort, mortality changes with time/advancement in science, and lack of standardized timing for measurement of mortality. Long-term mortality in elderly patients is related to underlying disease, and functional limitations are different from those related to ICU or hospital mortality. Elderly patients are at high risk of poor functional outcomes in ICU due to failure to recover their baseline activity of living with the addition of further functional impairment after ICU discharge. Quality of life should be evaluated in elderly patients after ICU discharge using tools such as effect on activities of daily living.[2]

In a recent article, Miniksar et al.[14] focused on clinical features and outcomes of elderly patients admitted to ICU. It was a retrospective observational study where they enrolled 218 patients with age of more than 85 years. They studied the association of APACHE II score, mechanical ventilation, inotropic support, coronary artery disease, chronic renal disease, blood transfusion,

tracheostomy, and its relation to mortality and hospital length of stay. They concluded that overall mortality in an elderly patient admitted to critical care was very high, around 81.7%, which was higher, compared to other studies.[10,14] They had a wide range of APACHE II score ranging from 8 to 49. Higher APACHE II, the need for mechanical ventilation, the need for inotropic support, presence of coronary artery disease, and chronic kidney disease were associated with higher mortality. In contrast, tracheostomy and blood transfusion were inversely associated with mortality. In terms of length of stay, they found renal replacement therapy, percutaneous gastrostomy, blood transfusion, and tracheostomy associated with a prolonged ICU stay. This is a single-center, retrospective trial with small sample size. Demographic impact, cultural practice, physician decision and perspective of patient, and/or relative about quality of life affect the ICU admission. This leads to hidden triage indirectly or directly by a physician. This affects the sample size and external validity of the study. In this study, they found blood transfusion inversely affects mortality, which is quite surprising and contradicts current transfusion practices in the ICU. Pre-ICU status and functional independence (or frailty) were not included in the study. Post-ICU quality of life and long-term outcome were also not considered. Need for interventions, such as vasopressors, ventilation, transfusions, and tracheostomy, is based on the underlying pathophysiological status of the patient. Relating them directly with mortality is an indirect (primary disease severity and frailty) rather than the direct effect. Regression model was used to overcome this issue, but there are always unknown confounding variables, which may be missed.

We, therefore, feel that there is no "Holy Grail" answer to our question whether elderly patients deserve ICU admission. A combination of factors such as age, frailty assessment, activities of daily life, comorbidities, acute diagnosis, values and preference of patient and relatives, socioeconomic issues, and ethical considerations should be considered before any decision is made. In case of borderline cases or dilemmas, a time-limited trial of admission or LSTs should be given.[12] Decisions should be dynamic and should be varied depending on patient response to treatment. Multidisciplinary meetings with frequent reassessment of patient status will help to fine-tune further treatment plans and decision-making.

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