EDITORIAL

Can We Predict Outcome In Critically Ill Elderly Patients?

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The multiple organ dysfunction syndrome defined as the development of progressive and potentially reversible physiologic derangement involving two or more organ systems not involved in the primary disorder is not uncommon in intensive care unit (ICU) patients and usually is a harbinger of mortality, especially in the elderly subset.[1,2] Various risk prediction scores have been developed and validated in the past few decades. SOFA score, developed in 1994, initially described as sepsis-related organ failure assessment score and later renamed as sequential organ failure assessment score, was devised to predict the outcome and assess complications and morbidity in critically ill patients.[3]

Moreno et al., in their multicenter study, evaluated the performance of maximum SOFA score and delta SOFA score, that is, total maximum SOFA score minus admission total SOFA, with the survival status at ICU discharge as the main outcome measure. They showed that these can be used to quantify the presence or development of organ dysfunction at admission or during ICU stay and there was a good correlation between increasing score and mortality.[4] In a prospective observational study by Ferreira et al., they showed that the selected SOFA parameters, that is, the mean and maximum SOFA scores, were the reliable predictors of outcome during the ICU stay. Initial and maximum SOFA score of >11 or average score of >5 was associated with >80% mortality. Barring the initial maximum score of >11, the decrease in serial SOFA score over the first 48 hours was associated with a mortality rate of <6%.[5]

In this edition, Chopra et al. studied the outcome of critically ill elderly patients (>60 years, with a mean age of 65.51 years) using SOFA score. The SOFA score at day 0 had an area under the curve (AUC) of 0.606 while on day 2 it was 0.957. The AUC for delta SOFA (calculated as difference between day 0 and day 2 scores) was 0.906. Thus, they showed that SOFA score at 48 hours and the delta SOFA score were better predictors of outcome in the elderly ICU patients. Out of the six parameters of SOFA score, use of mechanical ventilation, renal function as measured by serum creatinine on day 2, inotropic requirement on day 2, and the sensorium as assessed by Glasgow Coma Scale were significantly associated with the outcome.[6]

SOFA score that has been used as a tool to predict the outcome in this study is simple and easy to calculate as it does not consist of many variables unlike in many other scores. Also, they found a positive correlation between the SOFA score on day 2, delta SOFA, and the outcome.

In a similar single-center study by Gupta et al., where they studied the association of SOFA score with the outcome in critically ill elderly patients, they found a positive correlation between scores at admission and at 48 hours with mortality. They found that the mean SOFA scores were significantly higher at both time points in the deceased group (7.84 ± 3.74 and 8.64 ± 3.72, respectively).[7]

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Due to the demographic transition happening with the increasing average age and life expectancy of the population, an increase in ICU admissions among the older population is being seen. There is a need to recognize patients with increased risk of morbidity so as to plan their care and prognosticate the family and judicious utilization of the resources. Age itself is an independent predictor of mortality, even when adjusted for degree of physiological impairment.[8-10]

Qiao et al. concluded in their study that acute physiology and chronic health evaluation (APACHE) II, serial SOFA scores, and the difference between initial and maximum SOFA score can accurately predict mortality in elderly ICU patients.[2]

This study is a single-center study, and larger multicenter studies with the use of such risk prediction scores will be more useful to support their findings and to guide physicians about planning care in critically ill elderly patients. SOFA score is easy-to-use, and serial SOFA scores can be better outcome predictors as compared to the initial score.

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References

1. Marshall JC. The multiple organ dysfunction syndrome. In: Holzheimer RG, Mannick JA, editors. Surgical Treatment: Evidence-Based and Problem-Oriented. Munich: Zuckschwerdt; 2001. Available from: https://www.ncbi.nlm.nih.gov/books/NBK6868/.
2. Qiao Q, Lu G, Li M, Shen Y, Xu D. Prediction of outcome in critically ill elderly patients using APACHE II and SOFA scores. J Int Med Res 2012;40(3):1114–1121. DOI: 10.1177/147323001204000331.
3. Lambden S, Laterre PF, Levy MM, Francois B. The SOFA score—development, utility and challenges of accurate assessment in clinical trials. Crit Care 2019;23(1):374. DOI: 10.1186/s13054-019-2663-7.
4. Moreno R, Vincent JL, Matos R, Mendonca A, Cantraine F, Thijs L, et al. The use of maximum SOFA score to quantify organ dysfunction/failure in intensive care. Results of a prospective, multicentre study.

Working Group on Sepsis related Problems of the ESICM. Intensive Care Med 1999;25(7):686–696. DOI: 10.1007/s001340050931.
5. Ferreira FL, Bota DP, Bross A, Melot C, Vincent JL. Serial evaluation of the SOFA score to predict outcome in critically ill patients. JAMA 2001;286(14):1754–1758. DOI: 10.1001/jama.286.14.1754.
6. Chopra S, Pednekar S, Karnik ND, Londhe C, Pandey D. A Study of the Outcome of Critically Ill ElderlyPatients in a Tertiary Care Hospital using SOFA Score. Indian J Crit Care Med 2021;25(6):655–659.
7. Gupta V, Karnik ND, Agrawal D. SOFA Score and Critically Ill Elderly Patients. J Assoc Physicians India. 2017 Jul;65(7):47-50. PMID: 28792169.
8. Martin-Loeches I, Guia MC, Vallecoccia MS, Suarez D, Ibarz M, Irazabal M, et al. Risk factors for mortality in elderly and very elderly critically ill patients with sepsis: a prospective, observational, multicenter cohort study. Ann Intensive Care 2019;9(1):26. DOI: 10.1186/s13613-019-0495-x.
9. El Said SMS. Geriatrics intensive care unit: outcome and risk factors for in hospital mortality. Adv Aging Res 2013;2(4):166–169. DOI: 10.4236/aar.2013.24024.
10. Vosylius S, Sipylaite J, Ivaskevicius J. Determinants of outcome in elderly patients admitted to the intensive care unit. Age Ageing 2005;34(2):157–162. DOI: 10.1093/ageing/afi037.