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Have Severity Scores a Place in Predicting Septic Complications in ICU Multiple Trauma Patients?

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Risk assessment in ICU critically-ill patients is of tremendous importance for optimizing patients' clinical management, medical and human resource allocation and supporting medical cost distribution and containment.

The problem of predicting complications and mortality in ICU patients, although not new, is of genuine concern and much effort has been made to detect the most reliable parameters and scores. Numerous attempts have been made to use clinical and laboratory findings integrated into different algorithms or to incorporate these parameters into easy to use composite severity scores which would be applicable in various centers. In addition to clinical data, biomarkers or laboratory findings have been used for this purpose [1-3].

The SOFA, SAPS and APACHE scores and their newer versions, have been used worldwide to evaluate patients' severity, prognosis, and survival [4-7]. However, it has been reported that there are differences in their performance and estimation probability, in different geographical areas [8].

The applicability of composite scores to various categories of ICU patients, e.g. septic, trauma, cancer, and others, is also a matter of debate and is the subject of several studies [9,10].

In trauma patients, there have been numerous attempts to use "general" or specific scores and to compare the results [6,7,11] and scores like ISS and RTS have been developed and used to estimate survival and risks in trauma patients [4-7].

On the other hand, sepsis is the most important cause of late mortality in severe trauma patients, [4,12,13] and attempts have been made to predict risk of septic complications in these patients.

Tranca et al. reported a study which aimed at identifying the most accurate method or score to predict the risk of septic complications in multiple trauma patients [14]. The study also investigated if severity scores may be used for this purpose and if there were highly predictive cut-off values for septic complications in multiple trauma patients. The authors found that both functional severity and specific scores might be used to predict risks of septic complications in multiple trauma patients and describe cut-off values for these scores which are most reliable in predicting infectious complications in this category of patients. Thus a SOFA score >4 and an APACHE II ≥11 were predictive of developing septic complications, as were the trauma scores, RTS ≥7 and ISS ≥22, in predicting infectious complications in multiple trauma patients. The data was collected from a single center, and the population sample size was relatively small, both factors setting limits on the robustness of the research. Similar results have been reported in others studies [15-17], however Singh et al. reported different findings. He used trauma and injury severity score (TRISS), a combination index based on revised trauma score (RTS), injury severity score (ISS) and patient's age to predict the outcome in trauma cases [18] and the performance of TS, ISS and TRISS as predictors of survival was evaluated using the misclassification rate, the information gain and the relative information gain. A graded increase in mortality with decreasing RTS score was reported. It would have been interesting if Tranca et al would have comment in their article more on their results and especially on cutoff values in relation with the literature.

In conclusion, further studies are needed to find the best scores and reference values that predict the risk of septic complications in ICU multiple trauma patients.

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Inter-center as well as inter-patient category studies would lead to a better clinical validation of these scores, as well as giving rise to better predictions of outcome measures. Concomitantly this would lead to better clinical management and resources allocation.

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