Early Warning Scoring Systems: What is the Bottom Line?

Sir,

We read the paper by Mustafa *et al.* with interest, where they compared the effectiveness of four different early warning scoring systems for predicting the outcome of patients presenting in the emergency department with the diagnosis of COVID. The authors have claimed that the RISE-UP scoring system is superior to three other scoring criteria for predicting the outcome of COVID-19 patients, which in their study is defined as the intensive care unit admission and 30 days mortality.[1]

In light of the extensive utilisation of diverse scoring systems within hospital settings, it is imperative for the healthcare professionals and students to acquaint themselves not only with the advantages but also with the limitations inherent in these systems.

There is no doubt that the provision of 24-hour uninterrupted healthcare in emergency departments globally faces a significant challenge because of the increasing influx of non-emergency cases alongside genuine emergencies which is a problem that is exacerbated by insufficient primary care, outpatient clinics, and low health literacy. It is important to mention here that the original early warning score (EWS) was not presented to predict the outcome, and the primary goal of the EWS was to ensure that the skilled help is available by the bedside. As a physician, it would be very difficult for me to predict mortality by just looking at six variables included in the rapid emergency medicine score which include age, heart rate, mean arterial blood pressure, consciousness level, respiratory rate, and oxygen saturation. Similarly, just five variables are used in the modified EWS. When it comes to the 4C mortality score, a significant limitation lies in its exclusion of patients with prevalent comorbidities such as hypertension, ischaemic heart disease, and stroke in the original trial.[2] Furthermore, the predominantly geriatric patient population and the study's exclusive focus on the UK context contribute to the restricted generalisability of the study results. On top of this, these models were developed in the hospital settings; therefore, they cannot be used in community settings where most of the population receive their treatment including early assessment. For instance, these scoring systems would probably not perform when applied to a cancer hospital in the KPK province of Pakistan.[3]

The early warning scoring systems encompass various variables such as systolic blood pressure, heart rate, oxygen saturation, respiratory rate, level of consciousness, and age. These systems generate a total score by assigning numeric values to predefined parameters, aiming to identify patients at risk of deterioration. Upon a thorough examination of four utilised warning scoring systems, it becomes clear that the majority of components are analogous, with minor discrepancies that the author deems unlikely to have a substantial impact on patient outcomes (ICU admission and mortality). Consequently, relying solely on the factors like age, respiratory rate, and level of consciousness, makes it challenging to accurately predict the patient outcomes. Limitations of the study are already highlighted in the discussion section.

In my personal experience of working in Europe, the Middle East, and Pakistan, I have not seen any emergency physician or ICU consultant making decisions regarding ICU admissions or predicting mortality, solely based on the early warning scoring systems.

In conclusion, a study by Mustafa *et al.* underscores the superiority of the RISE-UP scoring system in predicting COVID-19 patient outcomes compared to other EWSs. While such tools aid bedside care, their limitations, varying efficacies across settings, and reliance on a few variables emphasise the need for cautious interpretation and complementary clinical judgement in diverse healthcare contexts which is important for all healthcare professionals to keep in mind at the time of decision-making.

COMPETING INTEREST:
The author declared no conflict of interest.

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FM: Manuscript writing, review, and submission.

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AUTHOR'S REPLY:

Thank you very much for your letter. Early prediction of poor outcomes may change the follow-up treatment of these patients. Therefore, scoring systems for predicting poor outcomes have been and continue to be developed. The performance of scoring systems may vary in different age groups, in different patient populations, and in patients of different ethnic origins. In these cases, their validity should be analysed, for which, there are many studies in the literature.[1-3] The RISE-UP score is one of the scores analysed for validity in COVID-19 patients.[1] We wanted to analyse the usaebility of different scoring systems in adult patients, in the Turkish patient population, and in our study, we found the RISE-UP score more successful in predicting poor prognosis than the other three scoring systems.

The emergency departments are units where a small number of physicians provide care to many patients at the same time for 24 hours without interruption, and the intensity is increasing day by day. We think that score systems will be useful in prioritising patients in patient-burden situations such as the COVID-19 pandemic. At times, when hospital facilities are insufficient in terms of both material and bed capacity, it will contribute to clinicians in deciding which patient should be kept under close observation in this disease and perhaps in other possible viral pandemics that we may encounter in the future. We believe that scoring systems as decision support mechanisms in patient management will be useful in prioritising our care services and resources.

With the results of our study, of course, it is not possible to make a recommendation to use the RISE-UP score alone. We think that we should not make decisions about the patients with scoring systems only but use them to support our decision-making mechanisms.

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