73707_Auto_Edited.docx

WORD COUNT 787
TIME SUBMITTED 02-MAR-2022 03:27PM
PAPER ID 83171285

Name of Journal: *World Journal of Critical Care Medicine*

Manuscript NO: 73707

Manuscript Type: LETTER TO THE EDITOR

Ideal scoring system for acute pancreatitis: Quest for the Holy Grail

Deven Juneja

Abstract

Clinical scoring systems are required to predict complications, severity, need for ICU admission and mortality in patients with acute pancreatitis. Over the years, many scores have been developed, tested and compared for their efficacy and accuracy. An ideal score should be rapid, reliable and validated in different patient populations and geographical areas and should not lose relevance over time. A combination of scores or serial monitoring of a single score may increase their efficacy.

TO THE EDITOR

We read with interest the retrospective analysis of 653 patients with acute pancreatitis (AP) by Teng *et al*, in which they compared the efficacy of six clinical scores to predict outcomes. The authors concluded that even though both Sequential Organ Failure Assessment (SOFA) and 48-h Ranson's score could accurately predict the severity, need for intensive care unit (ICU) admission and mortality in patients with AP, SOFA score had more favourable statistics[1].

Scoring systems are commonly employed to assess the need for ICU, compare group of patients and for prediction of complications and outcomes. Many a times, these scoring systems are developed and tested in particular patient populations like patients with sepsis, AP, chronic liver disease, *etc.* Some scoring systems can be applied to general ICU patients. Many scores can be computed at the time of admission but certain others

have to calculated 24-48 h after admission. With improvements in healthcare standards and availability of modern healthcare care equipment, patient outcomes may also improve over time, making older scores lose relevance. Hence, these scores need to be tested and compared for their efficacy and accuracy in different patient populations, different geographical areas and over different time periods.

Severe AP is associated with high morbidity and mortality and hence, early recognition of patients at risk for developing complications and poor outcomes is required to institute early aggressive care, and improve outcomes. Many scores have been specifically developed for predicting outcomes of patients with AP, these include Ranson's, Glasgow, Pancreatitis Outcome Prediction (POP), Bedside Index of Severity in Acute Pancreatitis (BISAP), and Harmless AP scores. These have been compared with each other and also with other scores designed for general ICU patients like Acute Physiology and Chronic Health Assessment (APACHE), simplified acute physiology score (SAPS), and SOFA scores. However, no single score has been found to be an ideal score, able to accurately identify the patients at risk and predict outcomes in different clinical conditions. Hence, newer scores are being developed and tested against the existing scores[2]. But before these scores are routinely used, they need to be meticulously tested in varied patient populations, over a period of time.

In a similar prospective cohort study conducted in ICU patients we compared 10 scores, APACHE II and III, SAPS II, mortality probability models (MPM) II, SOFA score, Logistic Organ Dysfunction System (LODS), Multiple Organ Dysfunction Score (MODS), Ranson, modified Glasgow, and POP[3]. As with the analysis of Teng *et al*[1], we also could not identify a single ideal score but SOFA score had the best statistics in predicting severity and mortality in patients with AP. SOFA score (>8), had a sensitivity and specificity of 87% and 90%, respectively in predicting 30-day mortality[3]. Our study is more than a decade old but SOFA score still seems to be efficacious in predicting outcomes of patients with AP.

SOFA score was originally developed to describe organ failure in patients with sepsis and was termed "Sepsis-related Organ Failure Assessment"[4]. Subsequently its utility in other patient populations have been tested and validated. It has been compared to other severity of illness scores and has shown good accuracy to predict outcomes in varied patient populations. Expanding the role of SOFA score, different modifications have been suggested to improve its accuracy in specific patient populations like pSOFA for paediatric patients, CLIF-SOFA for chronic liver disease, SOFA-HM for haematological malignancies and qSOFA and lactic acid SOFA (LqSOFA) for patients in emergency rooms[5]. Even the latest sepsis definitions recommend using SOFA score for diagnosis of sepsis and septic shock[6].

Now, in the age of artificial intelligence, machine learning algorithms have been developed to predict severity, complications, recurrence, mortality and even timing for surgery, with good accuracy[7]. However, the quality of the studies assessing the accuracy of ML remains low and there is a dearth of studies comparing ML with these commonly applied clinical scores. Hence, more studies need to be done before we routinely start using ML in our daily routine clinical practice. Till then, SOFA score, which is easy to compute and apply, seems to be the most reasonable choice.

73707_Auto_Edited.docx

ORIGINALITY REPORT

8%
SIMILARITY INDEX

PRIMARY SOURCES

1	Thomas Zheng Jie Teng, Jun Kiat Thaddaeus Tan, Samantha Baey, Sivaraj K Gunasekaran et al. "Sequential organ failure assessment score is superior to other prognostic indices in acute pancreatitis", World Journal of Critical Care Medicine, 2021 Crossref	22 words — 3%
2	www.ncbi.nlm.nih.gov Internet	16 words — 2%
3	f6publishing.blob.core.windows.net Internet	13 words — 2%
4	Deven Juneja, Palepu B. Gopal, Murthy Ravula. "Scoring systems in acute pancreatitis: Which one to use in intensive care units?", Journal of Critical Care, 2010 Crossref	12 words — 1%

EXCLUDE QUOTES ON
EXCLUDE BIBLIOGRAPHY ON
EXCLUDE MATCHES OFF