

Clinical decision rules in emergency care

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Clinical decision rules are useful tools in emergency departments (ED) that can guide physicians in making critical decisions regarding the management and disposition of patients. In this issue of the *Singapore Medical Journal (SMJ)*, five original articles reported studies on various aspects of acute or emergency medicine conducted across different hospitals in Singapore. Most of these studies are centred on clinical decision rules, and serve to shed some light on the current utility of these tools for both children and adults locally.

A retrospective analysis by Zhang et al examined the use of the Pneumonia Severity Index (PSI) and CURB-65 (confusion, uraemia, respiratory rate ≥ 30 per minute, low blood pressure, age ≥ 65 years) in predicting 30-day mortality in 1,902 patients with community-acquired pneumonia who presented to the ED.⁽¹⁾ This study found a mortality rate of 15.7%, compared with 9% in the original CURB-65 study by Lim et al⁽²⁾ and 10% in the original PSI study by Fine et al.⁽³⁾ Fine et al showed that patients with PSI Class I and II had $< 1\%$ mortality and hence could be potentially managed as outpatients. Zhang et al's study also showed that PSI Class I and II patients were found to be suitable for outpatient treatment (0% mortality). Conversely, Zhang et al's data indicated that only those with a CURB-65 score of 0 should be considered for outpatient management, while the original study by Lim et al recommended a CURB-65 score of 0 and 1. Overall, the study showed that PSI is more accurate than CURB-65 for predicting mortality.

The Canadian Computed Tomography Head Rule (CCHR) has been widely used internationally in the ED to decide which minor head injury patients warrant computed tomography (CT) of the head.⁽⁴⁾ Tan et al conducted a retrospective analysis of 349 patients on the compliance and performance of the CCHR.⁽⁵⁾ Compliance to the rule was at 71.3%, which was comparable to the rate reported in Canada. Among the 8.6% of patients for whom CT was recommended but not performed, none had clinically significant head injury. In contrast, among the 20.1% who underwent CT despite the rule not recommending it, 11.4% had clinically significant head injury, although none required neurosurgical intervention. This discrepancy illustrates the need for a prospectively validated head CT rule in the local community. In particular, no studies have addressed whether patients on single or dual antiplatelet agents with minor head injury should undergo CT.

Triage is an essential part of emergency care, as the patient load and demand often outstrips available resources. The Children's Emergency at KK Women's and Children's Hospital,

for instance, sees more than 480 patients a day. The department initiated its own paediatric triage scale, the Singapore Paediatric Triage Scale (SPTS), in 1997. In another study in this *SMJ* issue, Ganapathy et al assessed the SPTS and concluded that it remains a robust clinical tool.⁽⁶⁾ Of the 99,876 patients who were triaged at Category 3, only one was directly admitted to the intensive care unit and only seven were subsequently transferred to intensive care.

Last but not least, our case series of five patients utilised the Laboratory Risk Indicator for Necrotising Fasciitis score, which was derived in Singapore in 2004⁽⁷⁾ and has been widely used to identify early cases of necrotising fasciitis. Koh et al found that a score of more than 6 is not sensitive for vibrio necrotising fasciitis (one out of five cases was positive).⁽⁸⁾ Vibrio necrotising fasciitis has a high mortality rate and more studies should be done at the national level to allow early diagnosis and surgical treatment of this condition.

As seen in these articles, clinical decision rules can be helpful in guiding patient management. Nevertheless, they require validation in the local context and should only serve as an adjunct to our assessment of the patient. Being retrospective in nature, all of the above studies have their limitations. Health research authorities should take the lead to initiate and fund clinical studies that are important for our local population so that patients can be better managed with evidence-based measures. Data from prospective studies would enable us to benchmark the standards of care in our healthcare institutions to those of international centres, and longitudinal data would be useful to check on our progress over the years.

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