



EDITORIAL COMMENT

Looking into the crystal ball

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Available online 8 January 2020

Anyone familiar with the development of coronary care units (pioneered in Portugal by Prof. Arsénio Cordeiro 50 years ago) knows that together with the treatment of malignant arrhythmias, their great innovation was the assessment of prognosis in patients suffering myocardial infarction (MI) made possible by the classification developed in 1967 by Thomas Killip and John Kimball.¹ Based on their two-year experience with 250 patients, Killip and Kimball established a mortality risk score for MI divided into four classes based on left ventricular function, ranging from 2% in class I to the dismal 90% for class IV (cardiogenic shock). Although many other scores have since been developed, the Killip classification is still used today, and is incorporated into a new tool to predict in-hospital mortality from MI, presented in this issue of the *Journal* by Joel Ponte Monteiro and his group at Hospital Dr. Nélio Mendonça in Funchal, Madeira.²

In their single-center prospective study of 1504 consecutive patients admitted with MI, the authors developed a score using the following formula: Killip class \times Age \times Heart rate) / systolic blood pressure, known by the excellent acronym KAsH. Avoiding pre-categorization, the KAsH score includes the full range of values of each variable, enabling it to be applied as a true continuous score, as the authors point out.

The cut-offs were adjusted for ease of use and memorization, so that each KAsH group corresponds to a risk level: KAsH 1 (<40), corresponding to low risk, with 1% mortality, representing more than 50% of MI patients; KAsH 2 (40–90), intermediate risk, with 8% mortality, representing 27% of patients; KAsH 3 (90–190), high risk, with 20% mortality, representing 15% of patients; and KAsH 4 (>190), very high risk, with 55% mortality, accounting for 4% of patients. In the study, KAsH displayed excellent predictive power, significantly higher than the Killip classification alone (area under the receiver operating characteristic curve: KAsH 0.839 vs. Killip 0.775, $p < 0.0001$).

The new tool presented in this paper shows better predictive and discriminative power for in-hospital mortality in MI than existing scores. It was based on analysis of a registry of patients admitted between 2009 and 2016 and was validated in 95.7% of the population.

The authors appear to have achieved a similar impressive feat to Christopher Columbus standing an egg on end. From a simple qualitative assessment at first medical contact of four immediate objective parameters, they have developed a formula that is more accurate than existing scores, even the more complex ones, for determining prognosis in MI. The crystal ball of MI prognosis has just become clearer.

As the authors point out, the KAsH score will of course have to be tested in other patient populations before it is accepted as valid, and before its use becomes widespread it will need to be adopted and supported by influential elements of the medical community. Until this happens, there

☆ Please cite this article as: Armando L. Bordalo e Sá Perscrutando a bola de cristal. Rev Port Cardiol. 2019;38:689–690.
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is nothing to stop physicians experimenting with the score as they deal with patients in their daily practice.

References

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