Barriers to clinical risk scores adoption

Olivia Manfrini and Raffaele Bugiardini*

Dipartimento di Medicina Interna, Cardioangiologia, Epatologia (Padiglione 11), University of Bologna, Via Massarenti 9, 40138 Bologna, Italy

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This editorial refers to 'Risk scores for risk stratification in acute coronary syndromes: useful but simpler is not necessarily better'1 by A.T. Yan et al., on page 1072

Variability in physician decision-making is evident from recent studies on acute coronary syndrome documenting substantial differences in the use of various cardiac procedures.1 Fundamental to decision-making is the recognition of the most powerful predictors of survival. It is essential for the cardiovascular specialists to attempt and define the appropriate indications for medications and procedures and to base these recommendations on data from clinical research studies whenever possible.

Clinical judgment

The essential feature of clinical judgment is that physicians do not act solely on an evidence basis or on an arbitrary basis. Clinical judgment combines personal clinical experience, published research, patient perspectives, and other insights. Clinical judgment, however, might be a flaw. Common elements that may produce errors include conflicting information, limited time, and the physicians’ remind of their own clinical experience, the latter being too heavily influenced by recent cases or particularly bad or good outcomes.2 Clinical consensus guidelines are developed to overcome these recognized limitations by providing a complete and unbiased picture of published research and clinical experience.3

Guidelines in clinical practice

Although applying guidelines is highly rational, clinicians do not always make decisions in this fashion. The perspective article by Yan et al.5 is a welcome explication of this contentious topic. In this study, participating physicians were asked to categorize their patients into low, intermediate, and high-risk groups, according to the Canadian guidelines that are similar to the ACC/AHA and ESC guidelines. Cardiac catheterization is recommended for patients at high-risk. Nevertheless, approximately 30% of patients categorized as high risk did not undergo angiography. It follows that generating a guideline is no guarantee of its being widely adopted, even if doctors are purposely instructed to do so by protocol. Examining the barriers to their performance may provide insight into strategies for effective new future guideline implementations.

Conflicting information

Physicians may find the information promoted in support of the recommended guidelines unconvincing. This is especially common when there is conflicting information. The development of risk scores gives a good example of this complexity. During the past decade, many colleagues have been exploring the potential of the use of some risk prediction rules based on integrated simple clinical variables. The current study6 developed three hypothetical scenarios representing patients as objectively stratified by the Thrombolysis in Myocardial Infarction (TIMI), Platelet glycoprotein IIb/IIIa in Unstable angina: Receptor Suppression Using Integrilin Therapy (PURSUIT), and Global Registry of Acute Cardiac Events (GRACE) risk scores, and determined how often these ‘patients’ were referred for cardiac catheterization and their outcomes. The focus on the comparative performance of these scores may have obscured a remarkable finding: overall, patients stratified by the TIMI, PURSUIT, and GRACE risk scores as high-risk were approximately 20% less likely to be referred for cardiac catheterization when compared with patients classified as high-risk by their physicians using recommendations from clinical guidelines. However, should be noted that all of these risk scores conferred greater prognostic information when compared with physicians’ risk assessment. Physicians might, therefore, interpret the article in the journal meaning that clinical guidelines recommendations are not truly representing a significant change for the better. At the moment, just how effective the use of clinical guidelines can be on care is poorly established.6 Conflicting and/or insufficient information results in a reinforcement of the ‘status quo’: many physicians apply rules based on their personal experience.

Clinical risk scores may run counter to established rules

‘A patient with three-vessel coronary artery disease and left ventricular systolic dysfunction should have coronary revascularization’. This particular heuristic is generally accepted, but others are more controversial. For instance, patients who are found to have normal or only slightly narrowed
As with any important clinical investigation, the study of Yan et al.7 generates additional questions. Ultimately, the clinical value of risk scores stems from the extent to which they are useful for addressing invasive management (referral to cardiac catheterization) and treatment (use of evidence-based medications). However, few studies have evaluated the application of clinical risk scores in guiding the appropriate selection of patients for whom invasive interventions are likely to be beneficial. Also, clinical guidelines give limited discretion in using the current range of medical treatment options: aspirin, statins, and anti-ischaemic drugs should be offered to all patients, irrespective of the predicted level of risk. Future work should, therefore, be addressed in promoting and validating the use of clinical risk scores into standardized ‘critical pathways.’ Most importantly, no controlled study has shown improvements in patient outcome if using clinical risk scores.

**Approaches that enhance adoption of risk scores**

Although barriers to clinical risk scores adoption are great, they are not insurmountable.

The article by Yan et al.7 highlights the need to clarify guideline recommendations and to develop prospective protocols for an effective risk assessment of acute coronary syndrome. Partnerships among providers, healthcare organizations, and researchers would be able to generate novel guideline structures and implementation strategies that have the potential to further improve patient care.

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**References**


**Clinical value of the risk scores in patients without obstructive lesions**

Recent work9 found that the 1-year death and myocardial infarction rate of patients with acute coronary syndrome, but without obstructive coronary artery disease is 2.1%. When the TIMI risk score was applied, the risk raised from 0.6% (TIMI score of 1) to 4.1% (TIMI score of 4 or more). The 0.6% death or myocardial infarction rate, seen with a TIMI score of 1, is the expected rate in the general population of low-risk asymptomatic subjects. Conversely, an event rate of 4.1% at 1-year is comparable with what it can be seen in many patients with acute coronary syndrome and obstructive lesions. These data reinforce the idea that non-obstructive coronary artery disease is a rather heterogeneous population. These patients may have a wide spectrum of risk for cardiac ischaemic events, and they need methods of risk stratification.10