

## Rational Use of Evidence-Based Medicine: Why We Resist So Much?

André Schmidt<sup>1</sup> and Antonio Pazin-Filho<sup>2</sup>

Faculdade de Medicina de Ribeirão Preto – USP - Disciplina de Cardiologia - Departamento de Clínica Médica,<sup>1</sup> Ribeirão Preto, SP – Brazil  
Faculdade de Medicina de Ribeirão Preto – USP - Disciplina de Emergências Clínicas - Departamento de Clínica Médica,<sup>2</sup> Ribeirão Preto, SP – Brazil  
Short Editorial related to the article: Behavioral Influence of Known Prognostic Markers on the Cardiologist's Decision following Acute Coronary Syndrome: the GRACE Score Paradox

**“Man is a rational animal who always loses his temper when he is called upon to act in accordance with the dictates of reason”**

Oscar Wilde

Patients expect three things during a medical consultation: To know what they have, how they should be treated and what is the prognosis of the illness. For all these relevant questions physicians apply their clinical judgement. This term, as vague as it sounds, has been largely utilized and research has recently been developed to clarify its meaning and intend to develop techniques to improve it. Many biases (actually more than thirty have been described) or non-rational decisions can occur during the entire decision-making process and were extensively studied in non-medical areas like economics, granting a Nobel Prize to Daniel Kahneman. Although commonly observed in diagnostic reasoning, the first question of the patient, it has also a significant role in therapeutic decisions, the second question and ultimately, both previous questions affect the third one.

A therapeutic decision solely based on clinical judgement is certainly influenced by previous personal experiences and acquired knowledge, even if not recent or up to date. In most cases, those decisions must respect 3 fundamental principles of rational decision making - the principle of dominance, the principle of invariance and the sunk-cost principle of fallacy.<sup>1</sup> Briefly, the first one states that a person should choose the option that is never worse than the others available and may provide a better outcome. The principle of invariance holds that same data-information should be considered and used the same way despite how it is presented. Finally, because decisions influence the future not the past, so those making decisions should not consider previous outcomes and behaviors - the sunk-cost principle/fallacy.

Carvalho et al.,<sup>2</sup> in this issue of the Arquivos Brasileiros de Cardiologia, made an observational study in a coronary care unit where the GRACE score was applied to every admission. Contrary to the GRACE study they included only patients with

an acute coronary syndrome without ST-segment elevation in their study cohort. They verified that despite the risk score category (low, intermediate or high), the therapeutic decision of intervention was made in equal proportions. Additionally, a propensity score based on physicians preferences was less prognostic than the GRACE score.

So, why physicians choose not to use the GRACE score? The GRACE study from nearly 25 years ago, using a large sample of acute coronary syndrome patients from 94 representative hospitals in 14 countries, obtained data about all aspects involving the care of those patients and proposed some guidance to better select interventions<sup>3,4</sup> based on prognostic factors identified. The proposed score has been validated in other cohorts.<sup>5,6</sup>

The three principles above mentioned were apparently not considered. Since the invasive option was selected equally for all risk score categories, the principle of dominance was ignored because non-invasive exams were the choice for those at least in those with a low-risk score. Also, the principle of invariance was not considered since similar risk scores (same information) were distinctly treated. The third principle, also known as a sunk-cost fallacy, was not observed since, despite knowledge of the validation of the GRACE score for predicting future events, it was not used, probably based on previous misleading information or personal experiences. In this situation, people tend to remember worse outcomes even if they are very few compared to those who evolved well. Here it may also apply other biases such as default bias and bandwagon effect.<sup>1</sup> The propensity score used in the study was less predictive of mortality than the GRACE score. It would be interesting to know if based on these results any change in the decision process was done.

Some aspects were not addressed by the authors. Bias due to race, gender and economic status may be present in some settings.<sup>7</sup> They did not specify if the sample was exclusively from the public health system or private. This information may have also an influence in the decision process (availability bias) since some exams may not be available in the public health care system, for example.

To reduce bias, the simplest approach is to have doctors aware of the various biases present in daily practice. Another very important solution for bias and heuristics behavior is adherence to Evidence-Based Medicine (EBM). It provides accurate information from multiple sources and suggests those more validated and identify those considered harmful.<sup>8</sup> The GRACE score is an excellent example of EBM. Nowadays, another relevant area for research in this field is the prescription of the new oral anticoagulants.<sup>9</sup> As in Oscar Wilde quote, we must resist being non-rational and follow straight and balanced guidelines in order to improve our results in daily practice.

### Keywords

Acute Coronary Syndrome; Prognosis; Myocardial Infarction; Clinical Decision Making; Health Knowledge, Attitudes Practice, Evidence-Based Medicine.

Correspondência: André Schmidt •

Divisão de Cardiologia - HCFMRP-USP - AV. Bandeirantes, 3900.  
Postal Code 14048-900, Ribeirão Preto, SP – Brazil  
E-mail: aschmidt@fmrp.usp.br

DOI: 10.5935/abc.20190100

## References

1. Blumenthal-Barby JS, Krieger H. Cognitive biases and heuristics in medical decision making: a critical review using a systematic search strategy. *Medical decision making*. 2016;35(4):539-57.
2. Carvalho MC, Souza TMB, Suerdieck J, Lopes F, Correia VC, Lacerda YF, et al. Influência comportamental da predição de risco no processo de decisão do cardiologista: o paradoxo do Escore GRACE. *Arq Bras Cardiol*. 2019; 112(6):721-726
3. Granger CB, Goldberg RJ, Dabbous O, Pieper KS, Eagle KA, Cannon CP, et al. Predictors of hospital mortality in the global registry of acute coronary events. *Arch Intern Med*. 2003;163(19):2345-53.
4. Rationale and design of the GRACE (Global Registry of Acute Coronary Events) Project: A multinational registry of patients hospitalized with acute coronary syndromes. *Am Heart J*. 2001;141(2):190-9.
5. Abu-Assi E, Ferreira-Gonzalez I, Ribera A, Marsal JR, Cascant P, Heras M, et al. "Do GRACE (Global Registry of Acute Coronary events) risk scores still maintain their performance for predicting mortality in the era of contemporary management of acute coronary syndromes?". *Am Heart J*. 2010;160(5):826-34 e1-3.
6. Elbarouni B, Goodman SG, Yan RT, Welsh RC, Kornder JM, Deyoung JP, et al. Validation of the Global Registry of Acute Coronary Event (GRACE) risk score for in-hospital mortality in patients with acute coronary syndrome in Canada. *Am Heart J*. 2009;158(3):392-9.
7. Fitzgerald C, Hurst S. Implicit bias in healthcare professionals: a systematic review. *BMC Med Ethics*. 2017;18(1):19.
8. Bornstein BH, Emler AC. Rationality in medical decision making: a review of the literature on doctors' decision-making biases. *J Eval Clin Pract*. 2001;7(2):97-107.
9. Sposato LA, Stirling D, Saposnik G. Therapeutic decisions in atrial fibrillation for stroke prevention: the role of aversion to ambiguity and physicians' risk preferences. *J Stroke Cerebrovasc Dis*. 2018;27(8):2088-95.

