Validation and Applicability of a Risk Score: the More Data, the Better

To the Editor,

We have read with interest the article titled "Validation of the GRACE risk score for predicting death within 6 months of follow-up in a contemporary cohort of patients with acute coronary syndrome,"

by Abu-Assi et al.[1] We find it relevant to clarify certain methodological aspects, given the potential repercussions in certain populations.

The population under study is different in many aspects than the one used for building and later validating the GRACE scale. One of the most noteworthy parameters, the elevated rate of invasive techniques used in the patients, is currently very common in our field. This increases the value of the results presented. Unfortunately, as the authors recognize, the data on the incidence of reinfarctions and those corresponding to the rate of events during hospitalization are missing. Although mortality was undoubtedly the most relevant parameter, the additional information that could be provided by an analysis of reinfarctions would be valuable. Have the authors analyzed these variables with negative results, or are these data missing?

Likewise, the patients lost to follow-up that the authors describe could be a source of bias in the results.[2] Although the number appears to be low (79 patients; 6.3%), it is greater than the number of deaths observed (52 patients; 4.4%). We cannot assume that all of the patients lost during the follow-up period passed away, but the mortality rate would probably be higher in this group.[3] Can we obtain some clue as to the validity of the GRACE scores in this subgroup of patients? Were the baseline characteristics of these patients similar to those of the group that was monitored? What was the GRACE score for this subgroup?

As the authors conclude in the editorial that accompanies the article,[4] the validation of these risk scales in different contemporary populations strengthens their role as a therapeutic tool. However, for this to occur, we must have all the possible data at our disposal.

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Response

To the Editor,

In the comments by Pérez et al regarding our article,[1] they are correct with regards to the validity of the GRACE scale in the subgroup of patients excluded due to loss during follow-up (79 [6.3%]). On this subject, the robustness of the GRACE scale in our study did not drop when these patients were included (c-statistic = 0.85 [0.784-0.916]; Hosmer-Lemeshow P=.6). The predictive covariables that make up the model were similar in the subgroups with and without valid data on vital status, as indicated by the GRACE score for both subgroups (median, 121 [96-144] vs 117 [94-142]; P=.51).

Although the objective of our study was quite clear, to validate the GRACE scale for predicting 6-month mortality, the commentary by Pérez et al gives us an opportunity to present here, briefly, information on the validity of the GRACE scale for predicting intra-hospital risk of death.[2] We have proven the validity of this scale for the total sample and by type of acute coronary syndrome, as well as by subgroups with and without percutaneous coronary revascularization during hospitalization. The validation indexes were adequate as an overall score and by the subgroups explored (c-statistic ≥0.79, Hosmer-Lemeshow P>.1). Given that the GRACE scale for predicting intra-hospital risk of death has been recently updated,[3] we have repeated the previous analysis with the point scores corresponding to the modernized model. The results did not differ, the discrimination of the model was >0.8, and the estimations here were substantially adjusted to real values (observed mortality) (Hosmer-Lemeshow P≥.12). Therefore, we conclude that the GRACE score represents a useful and reliable clinical tool in our population for predicting the risk of death during hospital stay and at 6 months after discharge. The lack of data on reinfarctions is a limitation in our work,[1] as it did not allow us to validate the GRACE model that estimates the probability of occurrence of the combined event of death or reinfarction.

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