

Acute coronary syndromes in nonagenarians: do we have reliable risk scores?

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Introduction: GRACE score is strongly validated to determine the probability of death in acute coronary syndrome (ACS), nevertheless its usefulness in nonagenarians, a population with frequently associated comorbidities, is less established. BARTHEL and CHARLSON scores might be useful tools to predict outcomes in this population.

Objective: The aim of this study was to evaluate the potential applicability of GRACE score and two comorbidity scores (CHARLSON and BARTHEL) to estimate prognosis in nonagenarians with ACS.

Material and methods: We retrospectively included all consecutive patients equal to or older than 90 years old admitted with non-ST (NSTEMI) or ST segment elevation myocardial infarction (STEMI) in four tertiary care centers between 2005 and 2018. Patients with type 2 myocardial infarction were excluded. We collected patients' baseline characteristics and procedural data. In-hospital and at 1-year follow-up all-cause and cardiovascular mortality were assessed. Risk score accuracy was evaluated by area under the curve ROC (AUC).

Results: A total of 444 patients (mean age 92.6±2.4 years, 60% females) were analyzed.

Approximately half of them (n=241, 54%) with STEMI and the remainder (n=203, 46%) with NSTEMI. Global GRACE-AUC for in-hospital and 1-year all-cause mortality were moderate (0.64; 95% CI: 0.59–0.69 and 0.62; 95% CI: 0.57–0.67, respectively). Only in the NSTEMI group, the GRACE-AUC was better to predict in-hospital mortality, 0.70 (95% CI: 0.63–0.77). Neither CHARLSON nor BARTHEL showed better predictive results than GRACE score (AUC ≤0.60).

Conclusion: GRACE score has moderate accuracy to estimate mortality in nonagenarian patients with ACS. BARTHEL and CHARLSON scores do not improve the predictive value of GRACE score. An individualized approach is required to make therapeutic decisions in this special population.

Table 1. AUC values by prognosis factor

Score	BARTHEL	CHARLSON	GRACE
In-hospital death	0.58 (0.54–0.63)	0.59 (0.54–0.64)	0.64 (0.59–0.69)
– STEMI	0.59 (0.52–0.65)	0.59 (0.53–0.65)	0.59 (0.53–0.65)
– NSTEMI	0.61 (0.54–0.68)	0.60 (0.53–0.66)	0.70 (0.63–0.77)
1-year all-cause death	0.59 (0.54–0.64)	0.60 (0.55–0.65)	0.62 (0.57–0.67)
– STEMI	0.60 (0.53–0.66)	0.60 (0.54–0.67)	0.64 (0.57–0.70)
– NSTEMI	0.58 (0.51–0.65)	0.60 (0.52–0.67)	0.61 (0.53–0.68)
1-year CV death	0.59 (0.54–0.64)	0.59 (0.55–0.65)	0.63 (0.58–0.67)
– STEMI	0.60 (0.54–0.67)	0.66 (0.58–0.70)	0.60 (0.54–0.67)
– NSTEMI	0.58 (0.51–0.65)	0.54 (0.47–0.62)	0.63 (0.56–0.70)

Area under the ROC curve (AUC) values (95% CI) for in-hospital mortality, 1-year all-cause mortality and 1-year cardiovascular (CV) mortality separated by clinical presentation (STEMI and NSTEMI).

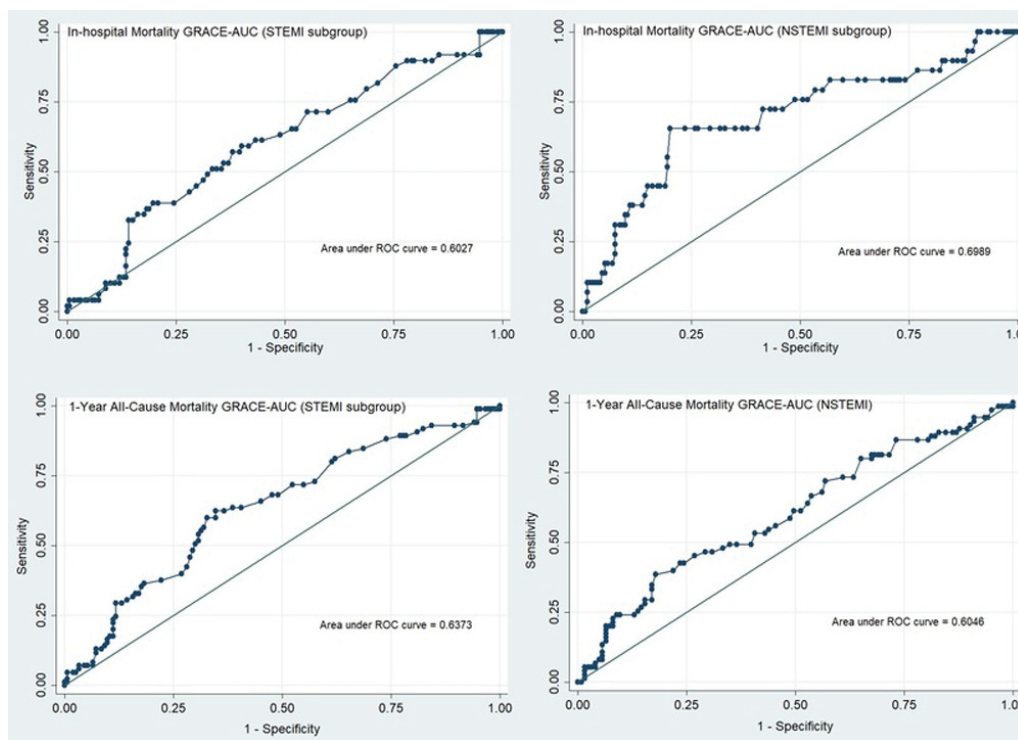


Figure 1. ROC-GRACE curves