Impact of patient-reported frailty on cardiovascular outcomes in elderly patients with non-ST-elevation myocardial infarction


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Background: Due to the increasing life expectancy, more older people will be affected by coronary artery disease (CAD). The evaluation of frailty and comorbidity is crucial when elderly patients with non–ST-segment elevation myocardial infarction (NSTEMI) are treated, as frailty can increase the risk of adverse clinical outcomes.

Purpose: The aim of this registry was to assess the predictive value of patient-reported frailty on the treatment and prognosis of elderly non-ST-elevation myocardial infarction (NSTEMI) patients.

Methods: A post-hoc analysis was performed in patients included in the POPular Age trial and POPular Age registry, which both enrolled elderly patients with NSTEMI. Frailty was assessed within one month after admission using the Groningen Frailty Indicator (GFI), which is a widely-used questionnaire that includes both physical, cognitive, social and psychological domains. Missing data was imputed by predictive mean matching when at least one item for the questionnaire was registered. Patients with a GFI score of 4 or higher were defined as frail. We evaluated the impact of frailty on both major adverse cardiovascular events (MACE, consisting of cardiovascular mortality, myocardial infarction and stroke) and major or clinically-relevant non-major bleeding (BARC 2, 3 or 5) at one year. Outcomes were then evaluated by stratifying the population in invasively managed patients, who underwent coronary angiography (CAG), versus conservatively-managed patients.

Results: The total included population consisted of 2229 patients ≥70 years presenting with NSTEMI. The GFI score was available in 1320 patients (mean age 79 years, 51% women), of whom 712 were considered frail (54%, mean GFI score 4.3 ± 2.8). In total, 1027 patients (78%) were invasively-managed. Frail patients were at higher risk for MACE than non-frail patients (9.7% vs. 5.1%, adjusted hazard ratio [HR] 1.62, 95% confidence interval [CI] 1.05-2.51), but not for major or clinically-relevant non-major bleeding (12.5% vs. 14.5%, HR 0.93, 95% CI 0.69-1.28). In frail patients, invasive management was strongly associated with a lower incidence of MACE (6.7% vs. 17.0%, adjusted HR 0.40, 95% CI: 0.24-0.66, p < 0.001). Yet, in non-frail patients, invasive management was not associated with a lower risk for MACE (4.8% vs. 6.9%, adjusted HR 0.81, 95% CI: 0.32-2.06, p = 0.66). This difference in outcomes could not be primarily explained by frailty status (p-value for interaction = 0.19).

Conclusions: Patient-reported frailty was independently associated with higher risk for MACE but not for major or clinically relevant nonmajor bleeding in elderly patients presenting with NSTEMI. The results may consolidate the importance of frailty screening in risk stratification in elderly patients presenting with NSTEMI.
Figure 1. KM MACE in frail vs. non-frail

Figure 2. Forest plot inv vs. consv