

Assessment of a Frailty Index in a Cohort of Myocardial Infarction Survivors

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Background: Frailty describes the heterogeneity of vulnerability in older people and has been shown to predict mortality in the general population. Little is known about the clinical relevance of frailty in survivors of myocardial infarction (MI), who are at increased risk of mortality and adverse events. We adapted the Rockwood frailty index (FI), based on accumulation of deficits, in a cohort of post-MI survivors and examined its predictive value for mortality and hospital admissions.

Methods: Participants were 885 patients aged ≤ 65 years admitted to one of 8 hospitals in central Israel with first acute MI in 1992-1993. An FI was developed comprising 32 variables collected during initial hospitalization, and 10-13 years after MI, including functional limitations (e.g. activities of daily living), mobility (e.g. climbing stairs), health attitudes (e.g. self-rated health) and comorbidity (e.g. diabetes, stroke).

Results: Baseline frailty scores ranged from 0-0.38 with a mean of 0.09 (SD 0.07). After 10-13 years, frailty scores in survivors were higher, as expected, with a range of 0.02-0.64 and a mean of 0.22 (SD 0.12). A moderate correlation was evident between FI calculated at the two time-points ($\rho=0.39$). With baseline frailty score dichotomized below and above the median (0.08), mortality rates were significantly higher in the high frailty compared to the low frailty group (28 vs. 11 deaths per 1000 person-years, $p<0.001$). Frailer patients additionally had a higher rate of hospitalization during follow-up (833 vs. 523 per 1000 person-years, $p<0.001$).

Conclusion: Frailty score calculated via an index of deficits was significantly associated with mortality and hospitalizations following MI. This index facilitates identification of the most vulnerable post-MI patients and forecasts healthcare use. Beyond predictive value, accurate identification of frailty may indicate which individuals will benefit from preventive interventions.