Multilevel Socioeconomic Status: An Independent Risk Factor for Post-MI Frailty

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Aims:
Frailty predicts mortality and hospitalizations in post-myocardial infarction (MI) patients. Socioeconomic status (SES) demonstrates a clear relationship with post-MI outcomes and is also associated with community frailty however this relationship has yet to be evaluated in post-MI patients. We investigated the predictive value of socioeconomic factors in the development of post-MI frailty.

Methods:
A cohort of 1151 post-MI patients was followed up from initial hospitalization in 1992-1993 for 10-13 years. Individual and neighbourhood SES were assessed at baseline and frailty was assessed during follow-up via a frailty index. Logistic regression models and discrimination indices enabled determination of the predictive value of socioeconomic factors over basic clinical variables in classifying high risk of developing frailty.

Results:
During follow-up, 399 patients (35%) developed frailty. Individual and neighbourhood SES were significantly and independently associated with the risk of developing frailty. Low income patients had more than twice the odds of becoming frail as those with high income (odds ratio (OR), 2.29,95% CI 1.41-3.73); while lowest neighbourhood SES was associated with a 60% increased risk of frailty compared to the highest (OR, 1.60, 95% CI 1.03-2.49). Inclusion of multilevel SES yielded substantial gains in *c*-statistic (0.70 to 0.76), net reclassification improvement (21.4%) and integrated discrimination improvement (6.4%) (all p0.001) over basic clinical factors, indicating increased predictive value and gains in sensitivity and specificity.

Conclusions:
Individual and neighbourhood socioeconomic factors are associated with the development of frailty post MI, and contribute to risk discrimination in this population. These findings highlight considerable socioeconomic inequalities in post-MI prognosis of care. Ability to predict development of frailty at the time of MI would facilitate preventive intervention and forecasting of healthcare use.