Medical Xpress

Associating frailty to cardiovascular disease and mortality

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Frailty is common in elderly people with cardiovascular disease and goes along with elevated mortality. However, no consensus exists on the definition of frailty. Many scores have been developed to assess frailty and to make predictions on disease and mortality, but there is no gold standard. Dr Gloria Aguayo from the Luxembourg Institute of Health

(LIH) and co-workers examined the predictive ability of 35 frailty scores for cardiovascular disease, cancer and all-cause mortality using data from the English Longitudinal Study of Ageing. The analysis, recently published in a special issued of *PLOS Medicine* on cardiovascular disease and multimorbidity, reveals that all frailty scores are associated with future mortality, and that some are linked to cardiovascular disease but none to cancer. The study underscores that the comparative evaluation of strength of associations between health outcomes in elderly people provides a solid evidence base for researchers and health professionals.

Dr Gloria Aguayo, scientist at the Epidemiology and Public Health Research Unit in LIH's Department of Population Health, and her collaboration partners analysed 35 frailty scores on their ability to predict mortality, cardiovascular disease and cancer. The study used data from 5,294 adults aged 60 years or more, and followed up over a period of seven years within the English Longitudinal Study of Ageing.

The researchers observed that all frailty scores were associated with all-cause mortality, while some were also associated with the incidence of cardiovascular disease. But none were associated with cancer events. In models adjusted for demographic and clinical information, 33 out of 35 frailty scores showed significant added predictive performance for all-cause mortality. Certain scores outperform others with regard to all-cause mortality and cardiovascular health outcomes in later life. The authors specify that multidimensional frailty scores may have a more stable association with mortality and incidence of cardiovascular disorders.

"This study addresses one of the most relevant issues in healthcare and research on aging populations—how to diagnose and assess frailty, given the availability of many different frailty scores and the lack of a gold standard," says Dr Aguayo. "Our study provides a direct comparison of the most complete list of frailty scores examined to date, using an

advanced and reproducible methodology, in a well-characterised cohort representing the general elderly population."

The study highlights the vast heterogeneity in the composition and performance of existing frailty scores. Dr Aguayo believes that the findings of the study will help clinicians in choosing the most appropriate instrument to assess frailty and associated health outcomes for their purpose. Notably, this research work is the first to compare the performance of frailty scores with respect to cancer incidence.

More information: Gloria A. Aguayo et al, Comparative analysis of the association between 35 frailty scores and cardiovascular events, cancer, and total mortality in an elderly general population in England: An observational study, *PLOS Medicine* (2018). DOI: 10.1371/journal.pmed.1002543

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