Adverse cardiovascular outcomes and sex-specific differences among older adults with cardiac ageing

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Funding Acknowledgements: Type of funding sources: Public grant(s) – National budget only. Main funding source(s): National Medical Research Council Singapore

Background: Despite growing calls to tackle aging-related cardiovascular disease (CVD), the role of detecting early diastolic dysfunction such as those observed in aging, prior to clinical disease, is of unclear clinical benefit.

Methods: Myocardial function determined by echocardiography was examined in association with incident cardiovascular outcomes or all-cause death by Cox proportional hazards model. Sex-based differences in outcomes were included.

Results: 956 participants [mean age 63±12.9 years, n=424 males (44%)] were categorized based on mitral peak early to late diastolic filling velocity (E/A) ratios: E/A <0.8 (28%), E/A 0.8-1.2 (39%), E/A (29%), E/A >2.0 (4%). Incidence rate (IR) for non-fatal cardiovascular outcomes was 2.83 per 100 person-years (95% CI 2.24-3.56), and 0.45 per 100 person-years (95% CI 0.26-0.80) for all-cause death. Event-free survival from non-fatal cardiovascular outcomes were significantly different among E/A categories (log-rank p=0.0269). E/A <0.8 (HR 1.80, 95%CI 1.031, 3.14, p=0.039) was associated with non-fatal cardiovascular outcomes. Among men, IR for cardiovascular outcomes was 3.56 per 100 person-years (95% CI 2.62-4.84), and 0.75 per 100 person-years (95% CI 0.39-1.44) for all-cause death. Among women, IR for cardiovascular outcomes was 2.22 per 100 person-years (95% CI 1.56-3.16), and 0.21 per 100 person-years (95% CI 0.067-0.64) for all-cause death. For E/A <0.8 category, women had significantly higher risks of non-fatal cardiovascular outcomes, compared to E/A 0.8-1.2 category (HR 2.49, 95%CI 1.18, 5.23, p=0.017).

Conclusion: Myocardial ageing was an independent predictor of cardiovascular outcomes. Impaired myocardial relaxation was prevalent in both sexes but associated with worse outcomes in women, suggestive of sex differences in age-related biology.