SESSION 4045 (PAPER)

HYPERTENSION AND CARDIOVASCULAR DISEASE

COMPARISON OF A FRAILTY INDEX WITH CARDIOVASCULAR RISK SCORES IN PREDICTING CARDIOVASCULAR DISEASE MORTALITY

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We compared the predictive and discriminative ability of frailty with traditional cardiovascular risk scores to estimate 10-year cardiovascular disease (CVD) mortality risk. Individuals aged 20-79 years old from the National Health and Nutrition Examination Survey who were free from CVD were included (n= 32,066). A 33-item frailty index (FI) which excluded CVD and diabetes-related variables was calculated. We calculated the Framingham Disease Risk (FDR) Hard Coronary Heart Disease and General CVD risk scores, the American Heart Association/American College of Cardiology (AHA/ACC) atherosclerotic cardiovascular disease risk equation, and the European Systematic Coronary Risk Estimation tool. A total of 322 individuals died (1.0%) from CVD. There was a low correlation between the FI and CVD risk scores (spearman's r= 0.19-0.33; p<0.0001) and a weak to strong correlation between CVD risk scores (spearman's r=0.19-0.88; p<0.0001). The competing-risks hazard ratio for CVD mortality for every 1% increase in the FI was 1.040 (95% CI: 1.032-1.048; p<0.0001) in an age and sex-adjusted model. The FI was independently predictive of CVD mortality when the other CVD risk scores were added to the model. The area under the receiving operating characteristic (ROC) curve was 0.800 (95% CI: 0.789-0.808; p<0.0001) for the FI. ROC values for the CVD risk scores ranged from 0.710 (95% CI: 0.700-0.721; p<0.0001) for the AHA/ACC risk score to 0.779 (95% CI: 0.770-0.789; p<0.0001) for the FDR General CVD risk score. An FI calculated with non-CVD and diabetes variables can predict 10-year CVD mortality risk independently of traditional CVD risk scores.

FRAILTY STATUS, COGNITIVE IMPAIRMENT, AND THE EFFECTS OF INTENSIVE BLOOD PRESSURE CONTROL

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Background: Frailty associates with cognitive decline and incident dementia in older adults. The Systolic Blood Pressure Intervention Trial (SPRINT) has highlighted blood pressure (BP) control as a potentially modifiable risk factor for cognitive impairment. Using data from SPRINT, we explore whether frailty status, based on a frailty index (FI), prospectively associates with mild cognitive impairment (MCI) and dementia, and whether the effect of intensive BP control on these outcomes varies by frailty status. Methods: SPRINT randomized participants to either to an systolic BP goal of <120 mmHg (intensive treatment) or a goal of <140 mmHg (standard treatment). We used Cox regression to model the association of the FI with MCI and dementia, and to conduct subgroup analyses by frailty status for the effect of intensive treatment. Results: We include 9307 participants, with the majority categorized as pre-frail (0.100.21, 38.0%). Adjusting for age, sex, race/ethnicity, education, and treatment group, a 0.1 increase in the FI was associated with increased risk for MCI (Hazard Ratio (HR) = 1.42, 95% CI: 1.29, 1.58) and dementia (HR = 1.80, 95% CI: 1.56, 2.08). There was weak evidence of an interaction between frailty status and intensive treatment for the composite outcome of MCI and dementia (p=0.03), with a beneficial effect of intensive treatment in pre-frail participants (HR=0.71 95% CI: 0.58, 0.89), and a largely null effect in frail participants (HR=0.98, 95% CI: 0.82, 1.18). Conclusions: Frailty status may modify the effect of intensive BP control on MCI and dementia.

HYPERTENSION TREATMENT IN U.S. LONG-TERM NURSING HOME RESIDENTS WITH AND WITHOUT DEMENTIA

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Background: Treatment of hypertension in individuals with dementia has benefit-harm tradeoffs. The objectives of this study were to describe patterns of antihypertensive treatment in U.S. nursing home (NH) residents and determine the association between intensity of antihypertensive treatment and outcomes important for persons with dementia. Methods: Medicare claims and Minimum Data Set (MDS) assessments were used to capture information on dementia, hypertension, comorbid conditions, cognitive function, activities of daily living (ADLs), and hospitalizations in Medicare-enrolled long-term care residents in 2013. Intensity of hypertension treatment was defined as number of antihypertensive drugs received on the date of an index MDS according to Medicare part D claims. Outcomes ascertained were hospitalizations, ADL decline, and mortality within 180 days of the index MDS. Results: A total of 262,285 residents had both hypertension and dementia. Residents were 85.7 years old on average and 77% female. At baseline, 30%, 40%, and 30% were receiving 0, 1, and 2+ antihypertensive medications, respectively. In multivariable logistic regression models, increased intensity of antihypertensive treatment was associated with increased hospitalization among residents with dementia (OR 1.03 per added medication; 95%CI 1.01-1.04), but decreased hospitalization among residents without dementia (OR .98 per added medication; 95%CI .97-1.00; p-value for interaction < .0001). In residents with and without dementia, increased intensity of antihypertensive treatment was associated with increased hospitalization for cardiovascular diseases, but small decreases in ADL decline and mortality. Conclusion: Study findings suggest that long-term NH residents with hypertension and dementia may not experience benefit from more intensive blood pressure control.