A217 MODIFIABLE PREDICTORS OF RACIAL DIFFERENCES IN GAIT VELOCITY IN AN ELDERLY URBAN COHORT

Irene Blanco, Joe Verghese, Richard B Lipton, Chaim Putterman, Carol A Derby *Division of Rheumatology, Albert Einstein College of Medicine, Bronx, New York, USA*

10.1136/ard.2011.151209.2

Background Gait velocity (GV) is predictive of health status, hospitalisations and mortality and is used to assess functional status of the elderly. In the USA, elderly Blacks have higher rates of physical disability compared to Whites. Few studies though have investigated possible modifiable risk factors predictive of GV and difference by race. Consequently, we performed a cross sectional study within a longitudinal elderly cohort to investigate racial differences in GV and what factors are associated with this measure.

Methods The Einstein Aging Study (EAS) is a longitudinal study of community residing elderly. Patients are recruited using Medicare beneficiary lists and voter registration records. Demographics and medical history are collected as well as the Geriatric Depression Scale, Blessed Information Memory Concentration Test, SF-36 and the Total Pain Index (TPI) which measures pain severity, location, duration and frequency over 3 months prior to the visit. GV is measured using the GAITrite gait mat embedded with pressure sensors (CIR Systems, Havertown, Pennsylvania, USA). Nested linear regression models adjusting to possible confounders were used to investigate racial differences in GV. To predict decreased GV, we fit linear regression models within race strata.

Results 157 Whites and 56 Blacks were included. Whites were older (median 79.9 years vs 75.5 years p-<0.01), more educated (median 14 years vs 12 years, $p < 0.01$), and had lower BMIs (mean 26.9 +-4.3 vs 28.9 + -6.4, $p = 0.03$). Blacks had higher proportions of female participants (80.4% vs 59.9%, $p < 0.01$), memory loss (7.1% vs 1.0%, $p = 0.02$) and diabetes (13.4% vs 28.6%, $p = 0.01$). There were no differences between races with regards to depression, osteoarthritis, history of heart attack, COPD, stroke, hip replacement/pinning, hip/femur/pelvis fracture, lower extremity pain or back pain (all p values >0.20). Blacks had higher pain levels on the TPI, but the difference was not significant (median 3.2 vs 2.0, $p = 0.09$). Neither group had higher pain levels on the SF-36.

Blacks had a significantly slower GV (mean 90.19 + -17.87 vs 99.06 + -20.08 cm/sec, $p < 0.01$). This difference in GV persists despite adjusting for: age, gender, BMI, education, the above listed comorbidities, TPI and pain as measured by SF-36. (ß for racial differences – 7.80 cm/sec, $p = 0.01$). In our predictive models, the modifiable risk factors that predicted decreased GV for Whites were: BMI ($p < 0.001$), stroke ($p = 0.013$), hip replacement (0.05), hip/pelvis/femur fractures ($p = 0.049$) and lower extremity pain ($p = 0.011$). For Blacks, lower GV was associated with back pain ($p = 0.007$) and diabetes though not statistically significant ($p = 0.06$).

Conclusion Differences in GV persist between Blacks and Whites despite adjusting for many confounders like pain, depression and comorbidities such as diabetes. When analyzed by race, both groups have modifiable risk factors for decreased GV and by extension decreased functional status. GV of less than 100 cm/sec in the elderly has been associated with increased hospitalisations and mortality. Therefore, using GV to screen and develop interventions may limit and reduct health disparities in functional decline in the elderly.