PARENTAL LONGEVITY IS ASSOCIATED WITH BRAIN VOLUMES IN SELECTED AREAS

Qu Tian,[1] David Melzer,[2] Luke Pilling,[2] and Luigi Ferrucci[1]
1. National Institute on Aging, Bethesda, Maryland, United States, 2. University of Exeter, Exeter, United Kingdom

A few studies report that parental longevity is associated with faster gait speed, less memory decline, a lower risk of Alzheimer's disease, and lower white matter hyperintensities. Data on structural neuroimaging correlates of parental longevity and its spatial distribution are limited. This study aims to examine relationships of parental longevity with regional brain volumes. We identified 10,513 participants from UK Biobank (mean age=58±6, ranged40-70, 50%women) with data on parental longevity and information on MRI regional brain volumes that have been related to executive function (dorsolateral prefrontal cortex), memory (hippocampus, parahippocampal gyrus, inferior temporal lobe, middle temporal lobe) and motor function (precentral gyrus, putamen, caudate, corpus callosum). Participants were categorized based on whether at least one parent lived to age 85 or older or neither parent survived to age 85. Associations of parental longevity with each brain volume measure were examined using linear regression, adjusted for age, sex, education, ApoE e4 status, total gray matter atrophy, white matter hyperintensities, hypertension, and glucose. Compared to participants whose both parents died before 85, those with at least one parent surviving to 85 had greater brain volumes in hippocampus, parahippocampal gyrus, inferior temporal lobe, middle temporal lobe, and precentral gyrus in fully adjusted models (Bonferroni corrected $p<0.01$). There were no significant associations with volumes in dorsolateral prefrontal cortex, putamen or caudate. Parental longevity is associated with preserved brain structure localized in memory- and motor-related cortical regions. These findings support previous reports that parental longevity is associated with better memory and gait with aging.

PHYSICAL ROBUSTNESS AND RESILIENCE AMONG LONG-LIVED FEMALE SIBLINGS: A COMPARISON WITH SPORADIC LONG-LIVERS

Angéline Galvin,[1] Svetlana Ukraintseva,[2] Konstantin Arbeev,[2] Mary Feitosa,[3] and Kaare Christensen,[4] *1. University of Southern Denmark, Odense C, Denmark, 2. Duke University, Durham, North Carolina, United States, 3. Washington University School of Medicine, St Louis, Missouri, United States, 4. University of Southern Denmark, Odense C, Syddanmark, Denmark*

Background: Long-lived individuals are central in studies of determinants of healthy longevity. However, few pro-longevity factors have been identified, presumably because of "phenocopies", i.e. individuals that live long by chance. Familial longevity cases may include less phenocopies than sporadic cases and provide better insights into longevity mechanisms. Here we examined whether long-lived female siblings have a better ability to avoid common diseases at ages 65+ (proxy for "robustness") and/or survive to extreme ages (proxy for "resilience") compared to sporadic long-livers. Methods: 1,156 long-lived female siblings were selected from three nationwide Danish studies (DOS, GeHA, LLFS) and age-matched with sporadic long-lived female control from the Danish population. Outcomes included cumulative incidence of common health disorders from age 65, and overall survival from 2006 onwards. Logistic and Cox models were used to evaluate incidence and survival respectively. Results: Long-lived female siblings had significantly lower risks of hypertensive (OR=0.84; 95%CI=0.71-0.99) and cerebrovascular (OR=0.73; 95%CI=0.55-0.96) diseases and depression (OR=0.74; 95%CI=0.62-0.88) at ages 65+, and better survival to extreme ages (HR=0.71; 95%CI= 0.63-0.81) compared to sporadic long-livers. After adjusting for diseases above, the association with mortality changed only marginally (HR=0.73 (0.64-0.83)). Conclusion: Familial longevity cases could be more informative for studying mechanisms of healthy longevity than sporadic cases. Long-lived female siblings demonstrate better physical robustness and resilience than their age-peers from general population, which might be attributed to a genetic component in familial longevity.

SESSION 3025 (PAPER)

PAIN AND PAIN MANAGEMENT

PAIN INTERFERENCE: A BARRIER FOR DAILY LIVING ACTIVITIES IN OLDER ADULTS WITH MULTISITE MUSCULOSKELETAL PAIN

Yael Koren,[1] and Suzanne Leveille,[2] *1. University of Massachusetts Boston, Dedham, Massachusetts, United States, 2. University of Massachusetts Boston, Boston, Massachusetts, United States*

Almost half of older adults experience multisite musculoskeletal pain (MMP) contributing to difficulty in daily activities but little is known about specific domains by which pain interferes in daily living. This study aims to determine domains of pain interference (PI) related to MMP in a cohort of older adults living in the community. The MOBILIZE Boston Study (MBS) is a cohort study of 749 adults aged ≥70y. Musculoskeletal (MSK) pain was assessed using the joint pain questionnaire and grouped as: no pain, single site, and multisite pain. The Brief Pain Inventory PI sub-scale assessed level of interference (0-10 rating) in 7 categories in the previous week including general activity, mood, walking, work, relationships with people, sleep, and enjoyment of life. Interference items were grouped as: none (0 rating), mild (>0, ≤2), moderate (≥2, ≤5), and severe (≥5) PI. There was a strong gradient of PI according to pain groups with severe walking interference in 36.5% of those with MMP compared to 3.8% of those with no MSK pain. The least PI was in relationships with others (9.1% of MMP vs 1.1% of no MSK pain). Reports of interference in other domains were intermediate (20-26% of MMP vs 3-4% of no MSK pain). Women and those with Less education reported the most PI in every domain but no differences were observed by age. Greater attention to specific domains of pain interference such as walking could have substantial benefits for reducing the overall impact of MMP among older adults.