Because the use of banked brain tissue in ADRD research is increasing, we evaluated the stability of vitamin K and vitamin D in human brain tissue over long-term freezer storage using samples obtained from the Rush Memory and Aging Project (n=500, mean age=91, 29% male). Specimens were stored at -80°C until analyzed. Vitamin K (menaquinone-4, MK4) and vitamin D (25(OH)D) were measured in four regions (mid-temporal and mid-frontal cortices, cerebellum, anterior watershed white matter) and averaged across regions. Storage time was categorized into two-year increments. Differences in MK4 and 25(OH)D concentrations according to storage time were evaluated using general linear models. MK4 concentrations did not differ in brains stored ≤8 years (geometric mean±SEM MK4 pmol/g: storage ≤2.0 years=1.2±0.1, 2.1-4.0 years=1.2±0.1, 4.1-6.0 years=1.4±0.1, 6.1-8.0 years=1.4±0.2; p=0.21). MK4 in brains stored >8.0 years (0.8±0.1 pmol/g) was 33% lower than the concentration in brains stored ≤2.0 years (p=0.005). The 25(OH)D concentrations did not differ in brains stored ≤6 years (geometric mean±SEM 25(OH)D pmol/g: storage ≤2.0 years=1.2±0.1, 2.1-4.0 years=1.1±0.1, 4.1-6.0 years=1.2±0.1; p=0.37). The 25(OH)D concentration in brains stored >6.0 years was 31-37% lower than that in brains stored ≤2.0 years (6.1-8.0 years=0.8±0.06, >8.0 years=0.7±0.04; p<0.001). MK4 and 25(OH)D appeared to be stable in human brain tissue stored at -80°C for up to 8 and 6 years, respectively. Storage time merits consideration when designing and interpreting studies that relate brain nutrient concentrations to ADRD.

THE FOXO3 LONGEVITY GENOTYPE IS ASSOCIATED WITH BETTER SURVIVAL AFTER ACUTE MYOCARDIAL INFARCTION IN OLDER PATIENTS
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Background: Although numerous studies have been published on prognostic factors after a first acute myocardial infarction (AMI) among middle-aged men, little is known about the prognostic factors and genetic determinants for post-AMI elderly patients. Methods: The Kuakini Honolulu Heart Program (KHHP) is a prospective population-based study of cardiovascular disease (CVD) (defined as coronary heart disease (CHD) and stroke) among men of Japanese ancestry living in Hawaii. We identified 141 first AMI patients from participants of the KHHP exam 4 (1991-93) by ECG and/or cardiac enzymes (onset age: 73-96 years). Men who survived more than one year after AMI were followed for mortality from onset of AMI to December 2018 (all were deceased by 28 years of follow-up). All had FOXO3 genotype information available. Quantile regression was used to compare the median survival times of FOXO3-G allele carriers (longevity genotype) with FOXO3-TT homozygotes (common genotype). Results: Adjusting for age at AMI onset, baseline body mass index (BMI) and glucose levels (at exam 4), median survival times differed between FOXO3-G allele carriers and FOXO3-TT homozygotes by 2.1 years (95% CI=0.24-3.95, p=0.027). Adding other known CHD risk factors (i.e. hypertension, etc.) to the model reduced the difference to 2.03 years (95% CI=0.17-3.89, p=0.033). Furthermore, chi-square testing showed the mortality rate from CVD among FOXO3-G allele carriers was significantly lower than that among the common FOXO3-TT genotype. Conclusions: The data suggest that the FOXO3 longevity genotype reduces the risk of dying from CVD and extends survival time of elderly patients with acute myocardial infarction.

THE IMPACT OF APOE E4 ALLELE IN THE EFFECTS OF PHYSICAL ACTIVITY INTERVENTIONS ON MAJOR MOBILITY DISABILITY INCIDENCE
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The apolipoprotein E (ApoE) e4 polymorphism is traditionally linked to increased rates of cognitive impairments and Alzheimer’s Disease. Recently, however, studies have connected ApoE e4 to self-reported mobility disability in those without cognitive impairment. We aimed to estimate the extent to which ApoE status is associated with incident major mobility disability (MMD) and whether it modifies the known beneficial effects of physical activity on incident MMD. Data were from 1,372 participants 70+ years old at risk for mobility impairments, enrolled in The LIFe Study. Participants were randomized to a structured physical activity (PA) or a health education program. The primary outcome was MMD, defined as the inability to walk 400 meters and measured every 6 months for an average follow-up period of 2.6 years. We used proportional hazards regression to examine the main effect of ApoE allele status and interaction with intervention group on MMD incidence. Cumulative MMD incident rates were similar in ApoE-e2 (31.46%), ApoE-e3 (33.41%), and ApoE-e4 (33.33%) carriers. Compared to the common ApoE-e3, MMD risk was similar in ApoE-e2 (hazard ratio [HR], 0.945 [95% CI, 0.70-1.27], P=0.71) and ApoE-e4 carriers ([HR], 1.187 [95% CI, 0.95-1.48], P=0.41). Additionally, ApoE carrier status did not modify the positive effect that a PA intervention had on MMD risk (interaction p-value > 0.20). These results suggest that ApoE carrier status is not associated with incident mobility disability. ApoE carrier status does not impact the effect a structured PA program has on reducing the risk of MMD in older adults.

SESSION 2881 (POSTER)

CANCER

CAUSES OF TIME TRENDS IN PREVALENCE AND MORTALITY OF MAJOR CANCERS AMONG U.S. OLDER ADULTS
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The time trend of prevalence and mortality of major cancers is the result of three competing processes: changes in the incidence rate, stage-specific survival, and ascertainment at early stages. Partitioning approach allows for evaluating the relative contribution of each of these competing processes to the overall trend. In this report we applied the partitioning methodology developed for the SEER registry data for prostate, colorectal, lung, female breast, bladder, ovarian, stomach, pancreas, kidney, liver cancers and melanoma. The analysis involves the design and estimation of four models for each cancer site: i) incidence rate using the Armitage-Doll model with individual predisposition modeled by the gamma distribution, ii) probability of relative survival after cancer diagnosis using the Weibull model for time after disease onset, iii) frequencies of stage at onset, and iv) mortality in the general population using the Gompertz model. B-splines are used to fit the time patterns of model parameters obtained for each year. Relative contributions of the partitioning components were evaluated for individual cancers (e.g., increase of prevalence in prostate cancer in 2000 was due to increased incidence (59%), improved survival (29%), and improve stage ascertainment (12%)) and compared among all considered cancers. The results were discussed in the light of the effect of the accumulation of survivors occurring in early years (due to improving survival) and their higher mortality (because of higher prevalence of survivors) in later years (i.e., mortality is transferred to latter time periods due to overall improvements in survival).

**COGNITIVE RESERVE, INCIDENT CANCER, AND RATE OF MEMORY DECLINE IN LATER LIFE**

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Cognitive reserve (cognitive skills and abilities acquired before onset of brain pathology) helps maintain cognitive function during aging. Cognitive decline after cancer treatment, known as “chemobrain,” is a prevalent outcome among older cancer survivors. It is unknown whether cognitive reserve buffers against acute neuropathological events such as cancer-related cognitive decline. We examined acute and long-term rate of memory decline associated with incident cancer diagnosis by education levels as proxy for cognitive reserve (low: <12 years; intermediate: 12 to <16 years; high: ≥16 years) in 14,449 adults aged 50+ in the US Health and Retirement Study from 1998-2016. Memory (z-scored) was assessed biennially as immediate and delayed word recall combined with proxy assessments. We used adjusted linear mixed models to determine long-term rates of memory decline before and after cancer diagnosis, and acute memory decline immediately after diagnosis (3,248 incident cases), and compared them with corresponding memory trajectories in cancer-free participants. Acute memory decline immediately after diagnosis was larger in those with low (-0.098 SD units, 95% CI: -0.150, -0.045) versus high (-0.038 SD units, 95% CI: -0.084, -0.008) education. Long-term memory decline after cancer was faster in those with low (-1.16 SD units/decade, 95% CI: -1.25, -1.07) versus high (-0.89 SD units/decade, 95% CI: -0.96, -0.82) education. Consistent with previous research showing an inverse cancer-dementia relationship, individuals with cancer had more favorable memory trajectories than cancer-free individuals with similar age and education. Among those with cancer, lower cognitive reserve was associated with greater acute and long-term memory decline after diagnosis.

**COMPARE BREAST CANCER SCREENING, DIAGNOSIS, AND TREATMENT BETWEEN MEDICARE PATIENTS WITH AND WITHOUT ADRD**

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Background: Incidence of both breast cancer and Alzheimer’s disease and related dementias (ADRD) increases with advancing age. Little research has delineated breast cancer screening, diagnosis, and treatment among women with ADRD. Method: Surveillance, Epidemiology, and End Results (SEER)-Medicare linked data were used. Female breast cancer patients diagnosed between 2005-2015 were identified. Chi-square tests were conducted to compare the characteristics of two groups with and without ADRD. Multiple logistic regression models were estimated to explain the diagnosis and treatment differences. Results: A total of 44,112 female Medicare beneficiaries age 65 or older were identified. Patients with ADRD (17.5%) were less likely to receive breast cancer screening (42.8% vs. 46.6% for all data years combined, p<0.0001), more likely to be diagnosed with breast cancer after death by autopsy or death certificate (8.1% vs 2.0%, p<0.0001). Among those who are diagnosed before death, patients with ADRD were more likely to be diagnosed with breast cancer at age 75 and older (84.8% vs. 15.2%, p<0.0001). After adjusting for age, race, poverty level, marital status, cancer stage at diagnosis, cancer screening history, wellness visit history, comorbidity, and rural/urban residence, logistic regressions suggest that patients with ADRD were less likely to receive breast cancer surgery (AOR=0.48, 95% CI: 0.45-0.52), radiation (AOR=0.41, 95% CI: 0.39-0.44), or chemotherapy (AOR=0.38, 95% CI: 0.33-0.41). Conclusion: Breast cancer screening was less utilized and breast cancer was diagnosed at an older age in patients with ADRD than those without. Treatments (surgery, radiation, and chemotherapy) were given less frequently to patients with ADRD.

**DEPRESSION MODERATES THE EFFECT OF PHYSICAL FUNCTIONING OVER TIME IN CANCER SURVIVORS**

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