of closeness or conflict with mothers. This study sheds new light on the complex ways in which race and gender moderate the role of mothers' limitations in intergenerational relationship quality.

SESSION 3018 (SYMPOSIUM)

ESPO/ BIOLOGICAL SCIENCES SECTION SYMPOSIUM: UNDERSTANDING THE COMPLEX AND INTERCONNECTED PATHWAYS OF AGING

CIRCULATING CELL-FREE DNA IS ASSOCIATED WITH COGNITIVE OUTCOMES

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Cell death is a mechanism by which aging tissues are able to maintain homeostasis. DNA of nuclear and mitochondrial origin is released into circulation following apoptosis or necroptosis and can be quantified in the blood as circulating cell-free DNA (ccf-DNA). We hypothesized that higher levels of ccf-DNA would be associated with worse cognitive function. Ultra-sensitive digital PCR was used to measure ccf-DNA in participants from the Rush Alzheimer's Disease Center Religious Orders Study/Memory and Aging Project. Global cognitive function was derived from a composite of 19 tests on a neuropsychiatric battery. A total of 885 ccf-DNA samples were analyzed from N=624 participants. Generalized estimating equations were used to estimate the cross-sectional association between ccf-DNA and global cognition scores, while latent growth models were used to estimate the longitudinal association between ccf-DNA and global cognition scores. Multinomial logistic regression was used to estimate the odds of having mild cognitive impairment (MCI) or dementia at last study visit relative to normal cognition, based on levels of ccf-DNA. Higher ccf-DNA levels were associated with lower global cognition score (-0.10, [-0.18, -0.02]) cross-sectionally. Each 1-standard deviation increase in ccf-DNA was associated with more rapidly declining global cognitive function over time (-0.11, [-0.19, -0.03]). A dose-response relationship was observed between increasing levels of ccf-DNA and odds of MCI (odds ratio [OR] = 1.08, [0.83, 1.41]) and dementia (OR = 1.29, [1.06, 1.57]). Our results suggest that ccf-DNA may serve as a biomarker of global cognitive decline and dementia risk.

DIFFERENCES IN LONGITUDINAL FASTING BLOOD GLUCOSE AND MORTALITY RISK ACROSS THE LIFESPAN BETWEEN MICE AND HUMANS

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Aging profoundly affects metabolism where trajectories of metabolic indices serve as strong predictors of health, disease and mortality. Mice and non-human primates are widely used to model all aspects of human biology, including metabolism. However, there is limited knowledge on how different species metabolically age during their life course. Here, we compare longitudinal predictors of health and mortality of three major metabolic indices among mice, non-human primates and humans. Longitudinal fasting blood glucose, body weight and body composition over the lifespan were compared across species in mice (Study of Longitudinal Aging in Mice), Rhesus monkeys (NIA and Wisconsin colonies) and humans (Baltimore Longitudinal Study on Aging). Survival analysis was conducted to calculate the risk of death for subjects with highest and lowest quartiles of fasting blood glucose. We will present data highlighting species-specific mechanisms of glucose homeostasis over the lifespan and its association with mortality.

SEX DIFFERENCES IN RESPONSE TO METFORMIN IN A LONGITUDINAL STUDY IN MICE

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Sexual dimorphisms have been recognized in most aspects of human health and disease, and there is now clear evidence for more pronounced differences in response to pharmacological interventions of aging. Here, male and female C57BL/6J mice at six months of age were administered 0.5% metformin in their diet every-other-week (EOW) for the remainder of their lives. The intervention was well tolerated and did not result in lifespan extension. Male mice treated with metformin EOW lost weight and augmented lean-to-fat ratio. In contrast, EOW females were refractory to changes in body weight and body composition compared to controls. The intervention did not influence non-fasted plasma glucose levels, while causing an increase in lactate in mice of both sexes. Indirect calorimetry was performed to measure energy expenditure in EOW mice that were either ON or OFF metformin during testing. Focusing on the respiratory exchange ratio (RER), males, but not females, preferentially utilized carbohydrates (RER ~0.9-1.0) when OFF metformin, switching to lipids (RER ~0.8-0.9) when ON metformin. This resulted in significant differences compared to controls in both periods (OFF and ON). RER of EOW females was different from controls during OFF metformin (RER ~0.8-0.9), while exhibiting significantly lower RER when ON metformin (RER ~0.7-0.8). These results clearly point at a strong dimorphism in the action of metformin in mice, including its role in metabolic homeostasis and overall health span. A better understanding of how sex influences the health and prolongevity benefits of metformin will benefit our understanding of the longterm clinical implications.

SESSION 3020 (PAPER)

ACUTE CARE AND HOSPITALIZATION (PAPER)

ASSOCIATION BETWEEN LIVING ARRANGEMENT AND ACUTE CARE USE IN OLDER MEDICARE HOME HEALTH PATIENTS

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This secondary analysis used a 10% random sample from the national Outcome and Assessment Information Set (OASIS) of Medicare beneficiaries ≥ 65 years old who