diseases such as Alzheimer's disease and Parkinson's disease. The inflammasome is an arm of the innate immune response involved in the activation of the inflammatory caspase-1 and the processing of the pro-inflammatory cytokines interleukin (IL)-1b and IL-18. We have previously shown that inflammasome contributes to the inflammatory response in the central nervous system after brain and spinal cord injury as well as stroke. In addition, we have shown that inflammasome inhibition in the aging brain results in improved cognitive outcomes. In this study we analyzed the brain of young (3 months old) and aged (18 months old) mice for the expression of inflammasome proteins. Our findings indicate that the inflammasome proteins NLRC4, caspase-1, ASC, and IL-18 are elevated in the cytoplasm of cortical lysates in aged mice when compared to young. Similarly, in the cytoplasmic fraction of hippocampal lysates in aged mice, we found an increase in NLRC4, caspase-1, caspase-11, ASC and IL-1b. Moreover, ASC is involved in the cell death mechanism of pyroptosis. Interestingly, the pyroptosome is elevated in the brain of aged mice. Taken together, our data indicate that the NLCR4 inflammasome contributes to brain inflammaging and that pyroptosis contributes to cell death in the aging brain; thus highlighting the inflammasome as a novel therapeutic target for the treatment of brain inflammaging.

AUTOPHAGY ACTIVITY IS LINKED TO ELEVATED ER-STRESS AND INFLAMMATION IN AGING ADIPOSE TISSUE

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Adipose tissue dysfunction in aging is associated with inflammation, metabolic syndrome and other diseases. We propose that impaired protein homeostasis due to compromised lysosomal degradation (micro-autophagy) might promote aberrant ER stress response and inflammation in aging adipose tissue. Using C57BL/6 mouse model, we demonstrate that adipose tissue-derived stromal vascular fraction (SVF) cells from old (18–20 months) mice have reduced expression of autophagy markers as compared to the younger (4–6 months) cohort. Elevated expressions of ER-stress marker CHOP and autophagy substrate SQSTM1/p62 are observed in old SVFs compared to young, when treated with either vehicle or with thapsigargin (Tg), an ER stress inducer. Treatment with bafilomycin A1 (Baf), a vacuolar-type H (+)-ATPase, or Tg elevated expressions of CHOP, and SQSTM1/p62 and LC-3-II, in 3T3-L1-preadipocytes. We also demonstrate impaired autophagy activity in old SVFs by analyzing increased accumulation of autophagy substrates LC3-II and p62. Compromised autophagy activity in old SVFs is correlated with enhanced release of pro-inflammatory cytokines IL-6 and MCP-1. Finally, SVFs from calorie restricted old mice (CR-O) have shown enhanced autophagy activity compared to *ad libitum* fed old mice (AL-O). Our results support the notion that diminished autophagy activity with aging contributes to increased adipose tissue ER stress and inflammation.

SESSION 3965 (SYMPOSIUM)

THE THERAPEUTIC BENEFIT OF ACTIVITY IN DEMENTIA CARE: EVIDENCE ACROSS COUNTRIES AND SERVICE CONTEXTS

Chair: N. Regier, *Johns Hopkins University, Kensington, Maryland*
Co-Chair: L.N. Gitlin, *School of Nursing, Johns Hopkins University, Baltimore, Maryland*

Dementia is a public health crisis that affects a staggering 47.5 million people worldwide and will quadruple in prevalence between 2010 and 2050. There is currently no imminent cure or effective pharmacotherapy, and dementia-related behavioral symptoms carry profound costs and consequences such as caregiver burden and long-term care placement. Consequently, it is vital to identify interventions that minimize behavioral occurrences and improve or sustain quality of life. One promising non-pharmacological intervention is engagement in meaningful activity, shown to increase positive emotions and attitudes toward caregivers, improve performance in activities of daily living, quality of life and well-being, and decrease neuropsychiatric symptoms. This symposium examines the evidence for and utility of activity as a therapeutic modality in dementia care in different countries and service contexts. Aravena and Gajardo will discuss the benefits of activity implementation within a public center supporting persons with dementia and their caregivers in Chile, the Kintun Program. Novelli et al., will report the outcomes of a randomized trial of a home-based activity program in Brazil on neuropsychiatric symptoms and caregiver well-being. Mamo et al. will present the therapeutic benefits of activity within a United States center for hearing-impaired persons with dementia. Regier and Gitlin examine activity engagement as a predictor of well-being, functional independence, cognitive changes, and mortality in persons with dementia participating in the National Health and Aging Trends Study. Taken as a whole, this symposium will highlight implementation challenges and cultural adaptations to optimize the benefits of activity as a therapeutic modality in dementia care.

ENGAGEMENT IN MEANINGFUL ACTIVITY AND WELL-BEING, COGNITION, AND MORTALITY IN PERSONS WITH DEMENTIA

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Per activity theory, older adults who remain engaged in the world around them experience increased levels of psychological and physical well-being. Activity engagement is particularly important for older adults with dementia, as it has been shown to decrease depressive symptomatology, improve performance of daily activities, improve quality of life, foster positive attitudes toward caregivers, and decrease challenging behaviors. Using data from the second (T1) and third (T2) rounds of the National Health and Aging Trends Study (NHATS), we examined activity engagement as a