

in older adults. In April 2020, a comprehensive search was conducted in six databases for publications of randomized clinical trials of pharmacist-led interventions to improve medication adherence in older adults. English-language studies with codable data on medication adherence and diverse adherence-promoting interventions targeting older adults (age 65+) were eligible. A standardized mean difference effect size (intervention vs. control) was calculated for the medication adherence outcome in each study. Study effect sizes were pooled using a random-effects meta-analysis model. Moderator analyses were then conducted to explore for differences in effect size due to intervention, sample, and study characteristics. The primary outcome was medication adherence using any method of measurement. This meta-analysis included 40 unique randomized trials of pharmacist-led interventions with data from 8,822 unique patients (mean age, range: 65 to 85 years). The mean effect size was 0.57 (95% Confidence Interval [CI]: 0.38-0.76). When two outlier studies were excluded from the analysis, the mean effect size decreased to 0.41 (95% CI: 0.27-0.54). Moderator analyses showed larger effect sizes for interventions containing medication education and when interventions had components delivered at least partly in patients' homes. In conclusion, this meta-analysis found a significant improvement in medication adherence among older adults receiving pharmacist-led interventions.

SEX DIFFERENCES IN POTENTIALLY INAPPROPRIATE PRESCRIBING AMONG OLDER ADULTS WITH MULTIMORBIDITY

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Sex differences in prescribing potentially inappropriate medications (PIMs) for various multimorbidity patterns are not well understood. This study sought to identify sex specific risk of PIMs in older adults with cardiovascular-metabolic patterns. Secondary analysis of the Health and Retirement Study interview data (2004-2014; n=6,341, ≥65 y/o) linked to Medicare claims data was conducted. Four multimorbidity patterns were identified based on the list of 20 chronic conditions and included: 'cardiovascular-metabolic only', 'cardiovascular-metabolic plus other physical conditions', 'cardiovascular-metabolic plus mental conditions', and 'no cardiovascular-metabolic disease' patterns. Presence of PIM prescribing was identified using the 2015 American Geriatrics Society Beers Criteria, limited to the list of medications to avoid in older adults. Chi-square tests and logistic regressions were used to identify sex differences in prescribing PIMs across multimorbidity patterns: (1) for PIMs overall and (2) for each PIM drug class. Results indicate that on average women were prescribed PIMs more often than men (39.4% and 32.8%, respectively). Women with cardiovascular-metabolic plus other physical patterns (Adj.OR=1.25, 95% CI: 1.07-1.45) and cardiovascular-metabolic plus mental patterns (Adj.OR=1.25, 95% CI: 1.06-1.48) had higher odds of PIM compared to men, however, there were no sex differences in PIM prescribing in the cardiovascular-metabolic only patterns (Adj.OR=1.13, 95%

CI: 0.79-1.62). There was variation by sex across different PIM drug classes. Our study emphasizes the need to further reduce PIM prescribing among older adults, and identifies target populations for potential interventions to improve medication prescribing practices.

THYME AND OREGANO TERPENOIDS ACTIVATE AUTOPHAGY AND PROTECT AGAINST HEPATIC STEATOSIS

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Caloric restriction has been shown to reduce chronic illness in aging and increase life expectancy in most living organisms including mammals. Autophagy, a ubiquitous catabolic pathway of cellular quality control, is a key mechanism mediating the benefits of caloric restriction. In addition, mutations in genes involved in autophagy have been associated with the early onset of age-related diseases such as neurodegeneration, highlighting autophagy as a potential therapeutic target. Here, we aimed to discover autophagy inducers from a library of edible molecules for potential use in food applications. To this end, we developed a novel in vivo high-content screening strategy using fluorescent reporter zebrafish that monitor autophagy flux in skeletal muscle. We identify the thyme and oregano constituent thymol as a novel potent autophagy inducer in zebrafish, human cells and mouse tissues. Mechanistically, thymol triggers an hormetic effect on mitochondria in synergism with a calcium-dependent autophagy response which, in turn, leads to mobilization of intracellular lipid stores. We tested the effects of chronic thymol supplementation in mice fed a high-fat diet and showed that thymol mobilizes fatty acids, reduces liver triglycerides and improves markers of liver damage. In sum, we validate the use of zebrafish screening as a discovery model for autophagy-based therapeutics and demonstrate that thymol is an autophagy inducer with potential for the prevention of chronic metabolic diseases and other age-related conditions.

Session 3290 (Symposium)

NOVEL APPLICATIONS OF ACCELEROMETRY DATA FOR HEALTH OUTCOMES IN OLDER ADULTS: THINKING BEYOND MVPA

Chair: Jennifer Schrack

Co-Chair: Jacek Urbanek

Discussant: Todd Manini

Physical activity is a well-established predictor of health and longevity. Wearable accelerometers produce high-frequency, time series data that capture multiple aspects of daily physical activity across the spectrum of intensity. Historically, the majority of accelerometry-based physical activity research has employed summary threshold metrics such as moderate-to-vigorous physical activity, or "MVPA." Although these measures are important for understanding compliance with physical activity guidelines, they underutilize the potential of this data. To advance the science of physical activity in older adults, more sensitive, clinically translatable measures are needed. This symposium will examine the associations between novel measures of accelerometry-derived physical activity and various aging-related health