of >1.5 SD from baseline on any of the cognitive tests. Using cox proportional hazard models, slow gait speed at baseline was associated with an increased risk of dementia (63%) and cognitive decline (43%), over a median 4.7 years. Weak grip strength was not as strong a predictor, but was also associated with risk (43% and 11%, respectively). Both outcomes showed higher risk for dementia than cognitive decline. There was no gender-specific interaction. When considered together (adjusted for one another), gait speed and grip strength were both independently associated with cognitive decline and dementia. The synergistic association of these physical measures, each of which is readily administered in the clinic or home, serve as effective early markers of increasing risk of cognitive decline and incident dementia and thus, should be considered for routine health assessments for older adults.

HIPPOCAMPAL VOLUME IS SMALLER IN FEMALE DOUBLE CARRIERS OF TWO STRONGEST AD GENETIC RISK FACTORS

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Genetic risk factors for Alzheimer's disease (AD) may facilitate AD-related changes in the brain long before AD clinical manifestation. While APOE4 was linked to a reduced hippocampal volume (HV) in a number of studies, the impact of rs2075650, another polymorphism strongly associated with AD, on HV is less clear. The rs2075650 (in TOMM40) is only in moderate to low LD with APOE4, and may have independent effects on HV or interact with APOE4. We studied associations of rs2075650 (G allele, risk factor for AD), rs429358 (C allele, proxy for APOE4), and their combinations, with right HV measured by MRI, among 10,738 women and 9,775 men aged 60-75, from UK Biobank. We found that right HV was significantly ($p<0.02$) smaller in women who carry both AD risk variants (rs2075650(G) and rs429358(C)), than in non-carriers of both of these variants, while having only one risk variant (G or C) didn't clearly affect HV. The studied associations didn't reach statistical significance in men. Our results suggest that rs2075650(G) and rs429358(C) may contribute synergistically to a reduction in hippocampus volume, in females only, and support the role of interactions between genetic risk factors for AD in sex differences in preclinical biomarkers of AD pathology.

HYPERTENSIVE DISORDERS OF PREGNANCY AND RISK OF ALZHEIMER'S DISEASE, VASCULAR DEMENTIA, AND OTHER RELATED DEMENTIA

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Several recent studies have examined whether hypertensive disorders of pregnancy (HDP) are associated with an increased risk for Alzheimer's disease (AD) and other related dementias (RD) with conflicting findings. Limitations to prior studies include lack of assessing risk by dementia subtype, inadequate sample sizes, and not fully exploring the role of mid-life factors. We performed a retrospective matched cohort study among women with >1 singleton pregnancy (1939–2013) using the Utah Population Database. HDP-exposed women (n=19,989) were one-to-two matched with unexposed women (n=39,679) by 5-year age groups, year of childbirth (within 1 year), and parity (1, 2, 3, 4, ≥5) at the time of the pregnancy. HDP pregnancies were complicated by preeclampsia (62%), gestational hypertension (34%), and eclampsia (4%). Women with a history of HDP had a higher hazard of all-cause dementia (HR=1.37; 95% CI: 1.26, 1.50) compared to women without a history of HDP after adjustment for maternal age, year of childbirth, and parity. The hazard doubled after additionally accounting for pre-pregnancy BMI (HR=2.31; 95% CI: 1.24, 4.32). Stratifying by dementia subtype, we found HDP to be associated with a higher hazard of vascular dementia (HR=1.64; 95% CI: 1.19, 2.26) and other related dementia (HR=1.49; 95% CI: 1.34, 1.65) but not Alzheimer's disease (HR=1.04; 95% CI: 0.87, 1.24) after accounting for competing risks. Mid-life hypertension and stroke were found to have the greatest mid-life impact, mediating 43% and 41% of dementia risk, respectively, highlighting women who may most benefit from close surveillance and early preventive and clinical interventions.

INFORMATION AND COMMUNICATION TECHNOLOGY USE IN COMMUNITY-DWELLING PERSONS LIVING WITH DEMENTIA

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Although many persons living with dementia still remain living in the community, they encounter many difficulties due to cognitive and physical impairment. Information and Communication Technology (ICT) could be helpful to protect persons living with dementia from risky events and monitor changes in physical function. This study aimed to review studies regarding ICT usage to monitor physical activity and safety in community-dwelling persons living with dementia. We searched quantitative studies that utilized ICT to monitor physical activity and safety published from 2011 to 2020 through five databases; 24 studies were included in the systematic review. Most studies (79%) were observational studies and conducted in North America or Europe (75%). In terms of ICT usage, the most frequently used type was a wearable device (96%); data such as physical activity, gait, and circadian rhythms were gathered. The ICT data were utilized for: 1) comparing ICT data within dementia group or with normal cognition group; 2) exploring a relationship with other variables in observational studies; 3) measuring an outcome of the experimental studies; and 4) determining feasibility of a sensor itself. Less than half of the studies met all five criteria in quality assessment. We found the ICT is being used in various ways in research for community-dwelling persons living with dementia. However, we are uncertain about the effectiveness of ICT use and the quality of studies. Future studies with rigorous study design are needed to provide better evidence for ICT use in persons living with dementia.

LONGITUDINAL ASSOCIATION OF FALL RISK FOR COMMUNITY DWELLING ELDERLY WITH AND WITHOUT ADRD

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Falls amongst elderly with ADRD and are a major cause of functional impairment and increased mortality. The