with data on BMI/weight both at baseline and the 6-year follow-up were followed to detect subsequent incident dementia cases. BMI change was assessed as the percentage of the difference between BMI at baseline and the initial 6-year follow-up and categorized into large (>10%) or moderate (5–10%) loss, stable (≤5%), and moderate (5–10%) or large (>10%) gain. Weight change (difference between weight at baseline and the 6-year follow-up) was categorized into large (>7.5 kg) or moderate (2.5–7.5 kg) loss, stable (≤2.5 kg), and moderate (2.5–7.5 kg) or large (>7.5 kg) gain. Weight change and 2.61 (1.09–5.54) for large BMI gain. Similar results were observed for a large weight loss (2.92 [1.67–5.07]) or gain (2.95 [1.16–6.53]). These associations became stronger among participants carrying an ApoE ε4 allele.

Conclusion: Both large bodyweight loss and gain are associated with a higher risk of dementia, especially among ApoE ε4 carriers.

ASSOCIATION OF BLOOD CELL PARAMETERS OF PERIPHERAL INFLAMMATION WITH BRAIN IMAGING MEASURES

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Neutrophil to lymphocyte ratio (NLR), red cell distribution width (RDW), and mean platelet volume (MPV), are easily measured circulating blood cell parameters that reflect chronic peripheral inflammation which increases risk for dementia and Alzheimer’s disease (AD). We investigated the cross-sectional association between these blood cell parameters and brain MRI measures, including total cerebral brain volume (TCBV) as percentage of total intracranial volume (TCV) to correct for differences in head size, hippocampal volume (HPV) and log transformed white matter hyperintensity (WMH) volume, in the Framingham Heart Study (FHS) cohorts. We identified 2882 FHS participants 25 to 92 years of age (mean 59 years), 53% women, who attended an exam that included a complete blood cell count sample and received a brain MRI within five years of blood draw. We used linear mixed effect models to examine associations, adjusting for age, age², sex, education, cohort, time between blood draw and MRI, prevalent cardiovascular disease, C-reactive protein, APOE-ε4 genotype and TCV for HPV and WMH, and accounting for familial correlation using a random effect. We observed significant (p≤0.01) associations between higher RDW and smaller TCBV, and between elevated NLR and larger WMH volume. Analysis on an older subgroup (age ≥60 years, mean 71 years, n=1357) demonstrated larger effect sizes and additional significance between increased RDW with smaller HPV. We conclude that chronic peripheral inflammation as measured by NLR and RDW associates with MRI measures of brain aging (TCBV, HPV) and vascular brain injury (WMH) in FHS, with stronger impact in participants ≥60 years.

CHOOSING UNWISELY: DISSEMINATION NEEDS OF PRIMARY CARE PROVIDERS OF PATIENTS WITH ALZHEIMER’S DISEASE

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Choosing Wisely is a well-known campaign to disseminate evidence-based clinical practices to providers and patients to drive care decisions, with geriatrics recommendations released in 2013. In December 2019, we aimed to determine what the dissemination needs of primary care providers were towards these recommendations. We developed common clinical scenarios with follow-up survey questions, relative to the care of people with Alzheimer’s disease (AD) and utilizing Choosing Wisely geriatrics recommendations. The survey was distributed online to a national cohort of providers. Providers were also asked to rate their confidence level and rationale for clinical choices. Results were analyzed used mixed methodology, with constant comparative analysis utilized for qualitative responses. Nationally from 41/50 states, 211 providers responded, 72% female, with occupations of physician (36%, 77), advanced practice nurse (50%, 106) and physician assistant (13%, 28), with family practice (63%, 142) and internal medicine (20%, 43) the most prominent fields. Results revealed erroneous geriatric practices, including 1) checking urinalysis for mental-status changes (53%, 116) and physician assistant (13%, 28), with family practice (63%, 142) and internal medicine (20%, 43) the most prominent fields. Qualitative analysis of rationale for incorrect responses revealed knowledge misconceptions (e.g. feeding tube would help avoid aspiration). Confidence levels were high among providers as 75.9% rated themselves as above average, yet did not correlate to clinical errors. Choosing Wisely geriatrics recommendations are not being followed by some providers. Highly confident providers made errors similar to lower confident providers. New ways to disseminate geriatric recommendations are needed to improve the care of patients with AD.

DETECTING EARLY SIGNS OF ALZHEIMER’S DISEASE AND RELATED DEMENTIA ONSET FROM THE EHR

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As dementia is widely under-detected, a predictive model using electronic health records (EHR) could provide a method for early screening to implement preventive strategies. There
is limited research on using EHR to identify persons with Alzheimer’s disease (AD) and related dementias (RD). In a data-driven approach, we used all ICD-9 diagnosis and CPT procedure codes from statewide inpatient, ambulatory surgery, and Medicare records, in addition to age at baseline and gender, to detect AD/RD from the Cache County Study on Memory in Aging (1995–2009). After removing participants diagnosed with dementia at baseline (n=335), 3882 (82%) Cache County Study participants could be linked to inpatient, ambulatory surgery, and/or Medicare EHR records; 484 (12.5%) of these 3882 had incident all-cause dementia, with 308 (7.9%) having AD/AD comorbid with RD and 176 (4.5%) having RD without AD. We removed participant’s ICD-9 codes occurring after first AD/RD diagnoses. EHR features (~2000) along with gold-standard diagnoses as class labels were then used to train and detect AD and/or RD using a Gradient Boosting Trees machine learning algorithm. Models evaluated with nested cross-validation yielded AUCs of 0.70 for all-cause dementia, 0.69 for AD/AD comorbid with RD, and 0.67 for RD without AD. Key factors detecting AD/RD included age at enrollment, cardiovascular, metabolic, and kidney disease, and sleep disturbances, with feature importance varying by record type and time frame prior to dementia onset. Our findings suggest that a patient’s health status up to 12 years prior may be useful in identifying individuals at-risk for dementia development.

EFFECTS OF CAREGIVER INTERVENTIONS FOR INFORMAL CAREGIVERS OF OLDER ADULTS WITH COGNITIVE DECLINE

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Objectives: To identify baseline factors and process factors, which indicate changes that are associated with caregiving confidence improvement attributed to caregiver support.

Methods: An intervention study using 35 informal caregivers (ICG) of older adults (≥65 years old) with cognitive decline. Recipients of ICGs belonged to the Programs of All Inclusive Care for the Elderly (PACE). Interventions were occupational therapy (OT) support or education about illness and effective caregiving methods, which took place in ICGs’ homes. OT interventions included training to reduce physical strain, and improve time and task organizations, and providing assistive devices). Caregiver confidence was measured using a Visual Analog Scale. Data were divided into two groups: improved confidence and decreased/no-change confidence. Eleven baseline data of care recipients (CRs) and ICGs as well as five process data were analyzed using logistic regression.

Results: Baseline factors that differentiated the two groups were ICG’s age, caregiving confidence level, and CR’s cognitive status, of which classification accuracy was 94.3%. Only Zarit Buren Interview (ZBI) score was associated with caregiving confidence change, of which classification accuracy was 74.3%. Younger ICGs, lower cognition, and lower caregiving confidence among baseline factors, and improved ZBI among the process factors were associated with improved confidence.

Discussion: Although our interventions prevented 65.7% of caregivers form declining their caregiving confidence, improving caregiving confidence was difficult while CRs’ cognition continued to decline. However, this positive change was possible even CRs had moderate dementia, on average. Personal interventions may be necessary to improve caregiving confidence and reduce ICG’s burden.

HORTICULTURE-BASED INTERVENTIONS TO ENHANCE HEALTH AND WELLBEING OF PEOPLE LIVING WITH DEMENTIA IN THE COMMUNITY

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The majority of people living with dementia in the early and middle stages are cared for at home by family caregivers. Participation in meaningful activities is important for good quality of life. Recreation based on horticulture is beneficial for people living with dementia in residential settings, yet evidence within community settings is less clear. The aim of this research was to examine the existing evidence for the impact of using contact with nature, gardens and plants to enhance well-being of people living with dementia in the community. Our secondary aim was to explore the outcome domains and instruments that were employed in the existing research studies, to inform future research efforts and guide clinical practice. A systematic search was conducted covering several databases and gray literature. Original studies that examined group or individual horticulture-based activities or interventions were included. Of 2127 articles identified through searching, 10 were selected for full review. The findings reveal that horticulture-based intervention showed positive impacts on food intake, social interaction, and well-being in older adults with dementia. Some evidence shows that horticulture-based activities may alleviate stressful symptoms associated with living with dementia. Future research may further evaluate the effect of the interventions on cognitive function, physical function, and behavioral symptoms in a more rigorous intervention design.

IMPLICATIONS OF RACIAL DIFFERENCES IN THE SHIFTS IN THE SETTING OF CARE FOR ALZHEIMER’S DISEASE AND RELATED DEMENTIAS

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The prevailing setting of care has strong associations with the progression of a disease at time of first diagnosis, subsequent treatment, resulting health outcomes as well as both long-term and short-term costs. The care of Alzheimer’s Disease (AD) and Related Dementias (ADRD) has been experiencing a shift from skilled nursing facility to home health care. However, changes in practice do not disseminate equally across the race/ethnicity spectrum of the U.S. and disadvantaged race/ethnicity-related groups often encounter differing conditions from those experienced by the majority. In this study, we calculated the race/ethnicity-related direct healthcare costs of individuals with AD and ADRD, stratified by care-provider structure (physician, inpatient, outpatient, skilled nursing facility, home health, hospice),