contribute information to more effectively target behavioral interventions, programs, and policies to improve diet quality for populations at highest risk.

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The Association Between Cancer and Alzheimer's-Type Neuropathology: A Community-Based Cohort Study

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Background: Cancer and Alzheimer's disease are common diseases in aging populations. Intriguingly, prior research has reported a lower incidence of Alzheimer's disease dementia among individuals with a history of cancer. Both are prevalent and lethal conditions. The current study was conducted to investigate the association of cancer history with neuropathological and cognitive features. Methods: Data were drawn from elderly, longitudinally evaluated participants in a community-based cohort study of aging and dementia who came to autopsy at the University of Kentucky Alzheimer's Disease Research Center. The data were linked to the Kentucky Cancer Registry, which is a population-based state cancer surveillance system, to obtain cancer-related data. We examined the relationship between cancer history, clinical dementia diagnoses, Mini-Mental State examination test scores, and neuropathological features using inverse probability weighting to address confounding and selection bias. Results: Included participants (n = 785) had a mean ±SD age of death of 83.8 ±8.6 years; 60.1% were female. Positive cancer history was determined in 190 (24.2%) participants. The prevalence of at least one APOE ε4 allele was lower among participants with cancer history compared to cancer-free participants (32.6% vs 42.0%, P = 0.0063). Participants with cancer history had lower odds of MCI/Dementia, and higher cognitive test scores (e.g., comparing MMSE scores evaluated at six and < two years prior to death., P < 0.001). Cancer history was also associated with reduced odds of intermediate (III/IV) or severe (V/VI) Braak Neurofibrillary tangle stages, moderate/frequent neuritic plaques, moderate/frequent diffuse plaques, and moderate/severe cerebral amyloid angiopathy (all P<0.05). By contrast, TDP-43, √é±-synuclein, and cerebrovascular pathologies were not associated with cancer history. Conclusion: In this study, we showed that cancer history was associated with a lower burden of Alzheimer's disease pathology and clinical dementia. These findings provide an additional basis of support for prior epidemiological research reporting a protective association between cancer and Alzheimer's disease-type dementia.

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Type-2 Diabetes Mellitus and Risk of Colorectal Polyps: A Colonoscopy-Based Study Using Natural Language Processing

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Purpose: Although type-2 diabetes (T2D) has been associated with colorectal cancer in previous studies, the association of T2D with colorectal polyps is unknown. Methods: Using pathology reports from the University of Utah (UU) Enterprise Data Warehouse (EDW), we developed a rule-based natural language processing (NLP) pipeline to extract colorectal polyp diagnoses and features (site, shape, number, size) on 15,679 patients who underwent a colonoscopy at the UU Gastroenterology clinic from 2013-2016. The NLP pipeline was validated by manual abstraction of 350 pathology reports, and demonstrated excellent performance (accuracy 91%). Patient characteristics, including age, sex, race, diabetes status, smoking, BMI, and medication use, were abstracted from the EDW. Odds ratios (OR) and 95% confidence limits (95% CI) adjusted for abstracted variables were calculated using multivariable polytomous logistic regression. Results: Participants were on average 56 years old, 85% White, 50% male, with a mean BMI of 29 kg/m2. About 27% of the participants reported history of T2D; 71% of whom used anti-diabetes medication. Participants were classified as having adenomas (30%), serrated polyps (16%), synchronous adenomas and serrated polyps (19%) or as polyp-free controls (35%). T2D was associated with a statistically significant lower risk of colorectal polyps [0.83(0.73,0.92)]. When evaluated by polyp subtype, T2D was marginally associated with reduced adenoma risk [0.90(0.80,1.02)], and inversely associated with risk of serrated polyps [0.80(0.67,0.93)]. The associations did not vary by lesion severity within polyp subtypes. There was a statistically significant deceased risk for polyps among anti-diabetes medication users [0.84 (0.69,0.99)]. Conclusions: Overall, T2D was associated with a statistically significant reduced risk of colorectal polyps; this reduced risk was consistent for both adenomas and serrated polyps. As T2D has previously been shown to increase colorectal cancer risk, this differential association with colorectal polyps may possibly be due to a variable effect of anti-diabetes medication use. Further studies are needed to better understand the mechanisms through which diabetes and its treatment may be differentially associated with colorectal polyps.

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Understanding Cancer Genetic Risk Assessment Intentions in a Tailored Risk Communication Intervention Randomized Controlled Trial

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Background: Pathogenic variants in cancer predisposition genes increase second, hereditary cancer risk among women with breast and/or ovarian cancer, and primary cancers in their relatives. National guidelines recommend cancer genetic risk assessment (CGRA)

(genetic counseling and/or genetic testing) for women at increased hereditary breast and ovarian cancer (HBOC) risk. Yet, less than half of high risk women, including rural dwellers and racial minorities have accessed CGRA. Purpose: The Genetic Risk Assessment for Cancer Education and Empowerment Project (GRACE), a superiority trial, addressed this translational gap, testing the efficacy of a targeted print brochure (TP) vs tailored counseling and navigation (TCN) vs usual care (UC) on CGRA intentions. TCN targeted behavioral variables theorized to mediate CGRA intentions. We believe GRACE is the first study of its kind promoting guideline-based CGRA to women at increased HBOC risk. Methods: CGRA-eligible women were recruited from three state cancer registries (N=641), completed a baseline survey, and randomized to TCN, TP or UC. TP and TCN received the mailed educational brochure. TCN also engaged in a telephone-based decision coaching and navigation session using motivational interviewing and tailored materials based on the Extended Parallel Process Model and Health Action Process Approach. Participants completed a follow-up survey at one month. Results: TCN improved CGRA intentions compared to TP (0.64, p<0.001, CI 0.32, 0.97) and UC (0.69, p<0.001, CI 0.37, 1.02). Theoretical targets, perceived risk (0.77, p=0.02, CI 0.11, 1.44) and self-efficacy (0.67, p=0.04, CI 0.05, 1.28) mediated CGRA intentions in TCN. Stratification showed increases in CGRA intentions for TCN vs TP among non-Hispanic Whites, Hispanics, urban dwellers, and women with low health literacy and no family history of breast and/or ovarian cancer (FBOC). In TCN, perceived self-efficacy improved in women with no FBOC. Conclusions: Improvements in CGRA intentions and theorized mediators support use of tailored risk communication interventions in Hispanics and women with low health literacy and no FBOC. Further tailoring may improve CGRA intentions in Blacks, other minorities, rural dwellers, and women with high health literacy and FBOC.

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