The time trend of prevalence and mortality of major cancers is the result of three competing processes: changes in the incidence rate, stage-specific survival, and ascertainment at early stages. Partitioning approach allows for evaluating the relative contribution of each of these competing processes to the overall trend. In this report we applied the partitioning methodology developed for the SEER registry data for prostate, colorectal, lung, female breast, bladder, ovarian, stomach, pancreas, kidney, liver cancers and melanoma. The analysis involves the design and estimation of four models for each cancer site: i) incidence rate using the Armitage-Doll model with individual predisposition modeled by the gamma distribution, ii) probability of relative survival after cancer diagnosis using the Weibull model for time after disease onset, iii) frequencies of stage at onset, and iv) mortality in the general population using the Gompertz model. B-splines are used to fit the time patterns of model parameters obtained for each year Relative contributions of the partitioning components were evaluated for individual cancers (e.g., increase of prevalence in prostate cancer in 2000 was due to increased incidence (59%), improved survival (29%), and improve stage ascertainment (12%)) and compared among all considered cancers. The results were discussed in the light of the effect of the accumulation of survivors occurring in early years (due to improving survival) and their higher mortality (because of higher prevalence of survivors) in later years (i.e., mortality is transferred to latter time periods due to overall improvements in survival).

COGNITIVE RESERVE, INCIDENT CANCER, AND RATE OF MEMORY DECLINE IN LATER LIFE

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Cognitive reserve (cognitive skills and abilities acquired before onset of brain pathology) helps maintain cognitive function during aging. Cognitive decline after cancer treatment, known as "chemobrain," is a prevalent outcome among older cancer survivors. It is unknown whether cognitive reserve buffers against acute neuropathological events such as cancer-related cognitive decline. We examined acute and long-term rate of memory decline associated with incident cancer diagnosis by education levels as proxy for cognitive reserve (low: <12 years; intermediate: 12 to <16 years; high: ≥16 years) in 14,449 adults aged 50+ in the US Health and Retirement Study from 1998-2016. Memory (z-scored) was assessed biennially as immediate and delayed word recall combined with proxy assessments. We used adjusted linear mixed models to determine long-term rates of memory decline before and after cancer diagnosis, and acute memory decline immediately after diagnosis (3,248 incident cases), and compared them with corresponding memory trajectories in cancer-free participants. Acute memory decline immediately after diagnosis was larger in those with low (-0.098 SD units, 95% CI: -0.150, -0.045) versus high (-0.038 SD units, 95% CI: -0.084, -0.008) education. Long-term memory decline after cancer was faster in those with low (-1.16 SD units/decade, 95% CI: -1.25, -1.07) versus high (-0.89 SD units/decade, 95% CI: -0.96, -0.82) education. Consistent with previous research showing an inverse cancer-dementia relationship, individuals with cancer had more favorable memory trajectories than cancer-free individuals with similar age and education. Among those with cancer, lower cognitive reserve was associated with greater acute and long-term memory decline after diagnosis.

COMPARE BREAST CANCER SCREENING, DIAGNOSIS, AND TREATMENT BETWEEN MEDICARE PATIENTS WITH AND WITHOUT ADRD

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Background: Incidence of both breast cancer and Alzheimer's disease and related dementias (ADRD) increases with advancing age. Little research has delineated breast cancer screening, diagnosis, and treatment among women with ADRD. Method: Surveillance, Epidemiology, and End Results (SEER)-Medicare linked data were used. Female breast cancer patients diagnosed between 2005-2015 were identified. Chi-square tests were conducted to compare the characteristics of two groups with and without ADRD. Multiple logistic regression models were estimated to explain the diagnosis and treatment differences. Results: A total of 44,112 female Medicare beneficiaries age 65 or older were identified. Patients with ADRD (17.5%) were less likely to receive breast cancer screening (42.8% vs. 46.6% for all data years combined, p<0.0001), more likely to be diagnosed with breast cancer after death by autopsy or death certificate (8.1% vs 2.0%, p<0.0001). Among those who are diagnosed before death, patients with ADRD were more likely to be diagnosed with breast cancer at age 75 and older (84.8% vs. 15.2%, p<0.0001). After adjusting for age, race, poverty level, marital status, cancer stage at diagnosis, cancer screening history, wellness visit history, comorbidity, and rural/urban residence, logistic regressions suggest that patients with ADRD were less likely to receive surgery (AOR=0.48, 95%CI: 0.45-0.52), radiation (AOR=0.41, 95%CI: 0.39-0.44), or chemotherapy (AOR=0.38, 95%CI: 0.35-0.41). Conclusion: Breast cancer screening was less utilized and breast cancer was diagnosed at an older age in patients with ADRD than those without. Treatments (surgery, radiation, and chemotherapy) were given less frequently to patients with ADRD.

DEPRESSION MODERATES THE EFFECT OF PHYSICAL FUNCTIONING OVER TIME IN CANCER SURVIVORS

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