

ALZHEIMER DISEASE

Cancer link to Alzheimer disease, but not vascular dementia

A team led by Cathy Roe at Washington University School of Medicine has found an association between Alzheimer disease (AD) and cancer risk, with the presence of one condition reducing the chances of subsequent diagnosis of the other. Common neurodegenerative mechanisms underlying cancer and AD could be responsible for this phenomenon, as no link with vascular dementia (VaD) was observed.

“Individuals with AD ... had a lower risk of future hospitalization for cancer...”

AD has been suggested to progress via the same mechanisms and pathways as some cancers, and cross-sectional research has shown that patients with AD show a reduced propensity to have a history of cancer. Patients with Parkinson disease also show relatively low cancer rates, as do patients with Down

syndrome, most of whom develop AD pathology with aging.

In a previous longitudinal study, the researchers found a reduced rate of cancer diagnosis in individuals with AD at baseline, and a reduced rate of AD diagnosis in patients with a cancer history at baseline. These results could not, however, be attributed directly to common underlying mechanisms. The researchers also noted that cancer could have been underdiagnosed in the AD patients, as community physicians may not look closely for this condition in patients with AD. The current study aimed to build on the previous work, addressing these and other limitations.

Roe *et al.* used data from the Cardiovascular Health Study—a longitudinal study with over 3,000 eligible participants—to examine the association between cancer and both AD and VaD. All patients were tested for cancer and dementia over the follow-up period, thereby avoiding diagnostic biases. The

main findings of the study were twofold. First, individuals with AD at baseline had a lower risk of future hospitalization for cancer than did participants with VaD or without dementia. Second, patients with a history of cancer at baseline showed lower rates of AD diagnosis than those without.

These results show a bidirectional association between cancer and AD. The absence of a link with VaD supports the idea that the development of cancer and AD are related by underlying mechanisms, which is consistent with previous evidence.

Next, Roe's team plan to investigate associations between AD and specific cancer subtypes. “Hopefully, this work will eventually help in identifying factors that may underlie both AD and cancer, which might then lead to improved treatment for both diseases,” says Roe.

Eleanor Beal

Original article Roe, C. M. *et al.* Cancer linked to Alzheimer disease but not vascular dementia. *Neurology* 74, 106–112 (2010)