Inflammatory Bowel Disease Linked to Doubling of Dementia Risk, Earlier Onset

In a new study, researchers found that older adults living with chronic GI inflammation developed dementia more than seven years earlier than those who did not.

July 13, 2021 By Mike Barr

In the past decade, research into the bidirectional connection between the gut and the brain has upended our understanding of these two organs by associating central nervous system functions like emotions and cognition with peripheral intestinal function. This crosstalk in communication has recently piqued the interest of researchers studying neurodegenerative diseases like Alzheimer's and cognitive decline, as I have reported here periodically.

In this latest study, researchers found that older adults living with chronic gastrointestinal inflammation may develop dementia more than seven years earlier than those who do not have the condition. Specifically, the large population-based study found that inflammatory bowel disease (IBD), which includes ulcerative colitis and Crohn's disease, may be linked to a two-fold increased risk of developing dementia, with onset at a younger age than that of the general population.

The research, published online in the journal Gut compared the risk for dementia in 1,742 adults age 45 and older with IBD to 17,420 controls matched for sex, access to health care, and dementia-related co-morbid conditions. (Contact me for a full-text copy if you want all the details, including p-values and confidence intervals!) During follow-up evaluations over the course of 16 years, the rate of dementia diagnosis was almost four times higher in patients with IBD than in controls. In addition, IBD patients were diagnosed with dementia at the mean age of 76.2 years versus the average age of 83.5 years among controls. Among dementia types, the risk of developing Alzheimer's dementia demonstrated the greatest increase, and disease risk appeared to increase with IBD chronicity—meaning that dementia risk appeared to be associated with early IBD diagnosis. Approximately 30% of IBD patients develop symptoms of the disease before the age of 21 years.

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years, the rate of dementia diagnosis was almost four times higher in patients with IBD than in controls.

These findings suggest a role for the gut-brain axis in dementia development, with the disruption of the intestinal epithelial barrier and the microbiome imbalance that are associated with IBD potentially facilitating the passage of gut microbial-derived neurotoxic metabolites into the central nervous system. The gut-brain axis is the bidirectional communication between the gut and the brain, which occurs through multiple pathways that include hormonal, neural, and immune mediators.

The current study, indicating a possible association between IBD and dementia, is not necessarily causal. However, results from studies like this suggest that inflammation may be a key factor in disease development along the gut-brain axis and indicate that chronic inflammation and an imbalance in gut bacteria may contribute to cognitive decline. Other human and animal studies suggest that IBD often presents with an increased incidence of psychiatric disorders and cognitive dysfunction.

Both Crohn's disease and ulcerative colitis are conditions characterized by chronic inflammation of the gastrointestinal tract, which may result in damage to the small or large intestine. In 2015, an estimated three million US adults reported being diagnosed with IBD: either Crohn's disease or ulcerative colitis. In a 2018 Danish study, also published in Gut, chronic intestinal inflammation was associated with the development of Parkinson's, even though years and years of chronic constipation have also been thusly linked.

Results from studies like this suggest that chronic, even quiescent inflammation and an imbalance in gut bacteria may contribute to cognitive decline.

The role of the gut microbiome in the pathogenesis of chronic neurodegenerative disorders such as Alzheimer's disease continues to unfold. Broadening our understanding of the interaction between the gut and the brain could lead to beneficial therapeutic strategies for improving human health, as researchers study how factors like environment and diet influence microbiome-gut-brain regulation. Throughout life, a range of healthy lifestyle factors, including exercise, limited intake of processed foods, avoidance of prolonged restricted diets, and consumption of fermented foods, adequate dietary fiber, and a phytonutrient-diverse diet all promote a healthy microbiome. Implementing practical lifestyle approaches for a healthy intestinal microbiome and supporting immune health may enhance patient engagement and improve outcomes.

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Dig deeper:

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