Free Press (Indore), 16th January 2024, Page - 04

Gut bacteria can cause Alzheimer's disease: IIT-Indore study

THE RESEARCH TEAM

OUR STAFF REPORTER
city.indore@fpj.co.in

The Indian Institute of Technology (IIT-Indore) in association with Choithram Hospital and Research Centre Indore has investigated the possible role of the most prevalent gut bacteria, Helicobacter pylori (H. pylori) in gut-brain axis disruption and neuroinflammation, thus shedding a new light on the correlation of this bacterial infection with brain disorders.

"It is possible that gut microbial secretions might enter the brain through one of the longest nerves, connecting gut to the brain and further inducing neuro-related diseases and changing the gut-brain axis. The gut-brain axis (GBA) consists of bidirectional communication between the central and the enteric nervous system, linking emotional and cognitive centres of the brain with peripheral intestinal functions," the study published in the journal 'Virulence' revealed.

The study was conducted by a group of researchers led by Dr Hem Chandra Jha, associate professor in the department of biosciences and biomedical engineering at IIT Indore and Dr Ajay Kumar Jain from Choithram Hospital and Research Centre.

The group investigated a molecular insight into the neuropathology associated with Alzheimer's disease and Signal Transducer and Activator of Transcription3 (STAT3) mediated neuroinflammation caused by H pylorisecretome.

STAT3 is a transcription factor which in humans is encoded by STAT3 gene. According to the study, it was found that H. pylori infection increases inflammation in the gut compartment and alters the activity of STAT3 and its downstream molecules. "This might act as a transcriptional regulator for inflammatory and Alzheimer's disease associated hallmarks, thus activating molecular signatures associated with Alzheimer's disease-related neurodegeneration," the study said.

Dr Hem Chandra Jha said, "Our team assessed the effect of antimicrobial-resistant (AMR) H. pylori strains on brain physiology. We now have a potential mechanism linking the stomach bacteria to neurological conditions. This study can help to upgrade the treatment regimen of patients with neurological complications along with prior H. pylori infection.Inhibiting STAT3 emerges as a potential strategy to safeguard against neuroinflammation and the pathological conditions linked to Alzheimer's disease."