The Role of Gastrointestinal Dysbiosis and Fecal Transplantation in Various Neurocognitive Disorders

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Abstract:

This presentation explores the critical role of the human microbiome in neurological and neurodegenerative disorders, focusing on gut-brain axis dysfunction caused by dysbiosis, an imbalance in gut bacteria. Dysbiosis has been linked to diseases such as Alzheimer's disease, Parkinson's disease (PD), multiple sclerosis (MS), stroke and neuropsychiatric disorders. The gut microbiome influences the central nervous system (CNS) through signaling molecules, including short-chain fatty acids, neurotransmitters, and metabolites, impacting brain health and disease progression. Emerging therapies, such as fecal microbiota transplantation (FMT), have shown promise in restoring microbial balance and alleviating neurological symptoms, especially in Alzheimer's and PD. Additionally, nutritional interventions such as probiotics, prebiotics, and specialized diets are being investigated for their ability to modify gut microbiota and improve patient outcomes. This review highlights the therapeutic potential of gut microbiota modulation but emphasizes the need for further clinical trials to establish the safety and efficacy of these interventions in neurological and mental health disorders.