Gut-brain axis: A matter of concern in neuropsychiatric disorders...!

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Abstract

The gut microbiota is composed of a large number of microbes, usually regarded as commensal bacteria. It has become gradually clear that gastrointestinal microbiota affects not only gut pathophysiology but also the central nervous system (CNS) function by modulating the signaling pathways of the gut-microbiota-brain axis. This bidirectional gut-microbiota-brain axis communication primarily acts through neuroendocrine, neuroimmune, and autonomic nervous systems (ANS) mechanisms. Accumulating evidence reveals that gastrointestinal microbiota interacts with the host brain, and its modulation may play a critical role in the pathology of neuropsychiatric disorders. Recently, neuroscience research has established the significance of

gut microbiota in the development of brain systems that are essential to stress-related behaviors, including depression and anxiety. Application of modulators of the microbiota-gut-brain axis, such as psychobiotics (e.g., probiotics), prebiotics, and specific diets, may be a promising therapeutic strategy for neuropsychiatric disorders. The presented review article primarily focuses on the relevant features of the disturbances of the gut-microbiota-brain axis in the pathophysiology of neuropsychiatric disorders and its potential therapeutic target in neuropsychiatric disorders, including depression and anxiety.

Keywords: Gut microbiota; Gut-brain axis; Neuroimmune; HPA axis; Vagus nerve; Psychiatric disorders; Depression; Cognitive function; Psychobiotics;

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Conflict of interest

All authors declare no conflict of interest.

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