**Potential application of helminth therapy for resolution of neuroinflammation in neuropsychiatric disorders.**

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**Abstract**

Neuropsychiatric disorders (NPDs) are among the major debilitating disorders worldwide with multiple etiological factors. However, in recent years, psychoneuroimmunology uncovered the role of inflammatory condition and autoimmune disorders in the etiopathogenesis of different NPDs. Hence, resolution of inflammation is a new therapeutic target of NPDs. On the other hand, Helminth infections are among the most prevalent infectious diseases in underdeveloped countries, which usually caused chronic infections with minor clinical symptoms. Remarkably, helminths are among the master regulator of inflammatory reactions and epidemiological studies have shown an inverse association between prevalence of autoimmune disorders with these infections. As such, changes of intestinal microbiota are known to be associated with inflammatory conditions in various NPDs. Conversely, helminth colonization alters the intestinal microbiota composition that leads to suppression of intestinal inflammation. In animal models and human studies, helminths or their antigens have shown to be protected against severe autoimmune and allergic disorders, decline the intensity of inflammatory reactions and improved clinical symptoms of the patients. Therefore, "helminthic therapy" have been used for modulation of immune disturbances in different autoimmunity illnesses, such as Multiple Sclerosis (MS) and Inflammatory Bowel Disease (IBD). Here, it is proposed that "helminthic therapy" is able to ameliorate neuroinflammation of NPDs through immunomodulation of inflammatory reactions and alteration of microbiota composition. This review discusses the potential application of "helminthic therapy" for resolution of neuroinflammation in NPDs.

**KEYWORDS:**

Autoimmune disorders; Helminth therapy; Inflammation; Microbiota; Neuropsychiatric disorders