Gut Microbiota Profiles in Treatment-naïve Children with Attention Deficit Hyperactivity Disorder.

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Abstract

BACKGROUNDS:
Although increasing evidence suggests a role for the gut microbiota in neurodevelopment, the actual structure and composition of microbiota in children with attention-deficit/hyperactivity disorder (ADHD) remain unclear.

METHODS:
Thus, the present study aimed to define the characteristics of gut microbiota in treatment-naive children with ADHD and to assess their relationship with the severity of ADHD symptoms. High-throughput pyrosequencing was used to investigate the microbiota composition in fecal matter from 51 children with ADHD and 32 healthy controls (HC).

RESULTS:
An operational taxonomical unit (OTU)-level analysis revealed a significant decrease in the fractional representation of Faecalibacterium in children with ADHD compared to HC. In individuals with ADHD, the abundance of Faecalibacterium was negatively associated with parental reports of ADHD symptoms. However, there was no significant difference in alpha diversity between the ADHD and control groups.

CONCLUSIONS:
This present findings support the involvement of microbiota alteration in psychiatric diseases and Faecalibacterium may represent a potential novel marker of gut microbiota in ADHD. Future studies are needed to validate these findings and to elucidate the temporal and causal relationships between these variables.