



Mindful of probiotics for psychiatric comorbidities in IBS



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Treatment with the probiotic *Bifidobacterium longum* subsp. *longum* NCC3001 (BL) reduced depression scores and altered brain activity in patients with IBS, according to results of a placebo-controlled pilot study.

IBS is frequently associated with psychiatric comorbidities and gut-brain interactions are thought to contribute to its development. Previous research has examined probiotic treatment for IBS symptoms, but data on effects on psychiatric conditions in humans was lacking despite evidence from animal studies.

In a double-blind, placebo-controlled prospective trial, Pinto-Sanchez *et al.* randomly assigned patients with IBS (either IBS with diarrhoea or mixed-stool pattern) and mild to moderate anxiety and/or depression to receive either BL ($n = 22$) or placebo ($n = 22$) daily for 6 weeks. A number of parameters were then monitored, including IBS symptoms and anxiety and depression scores.

Functional MRI (fMRI) was performed to test brain activation patterns as well as analyses of stool, urine and blood samples, including faecal microbiota composition, urine metabolome profiles and serum markers of inflammation.

At week 6, more patients in the BL group (14 of 22) had a reduction in depression scores than the placebo group (7 of 22); this improvement was still observed at the 10-week follow-up. Interestingly, brain activity patterns differed between the two patient groups; fMRI analysis demonstrated that BL reduced responses to negative emotional stimuli in multiple brain areas, including frontolimbic regions and the amygdala, with changes in engagement of the latter correlated with depression scores.

Although BL had no effect on anxiety, the BL group had improved quality of life scores and overall symptoms of IBS at week 6. Finally, both groups had similar faecal microbiota profiles, serum

markers of inflammation and levels of neurotrophins and neurotransmitters, although reduced urine levels of methylamines and aromatic amino acid metabolites were observed in the BL group.

“Despite being a pilot study with limited subject numbers, this is the first trial to show that a specific prebiotic improves depression scores in IBS patients and induces pronounced changes in brain activity in regions that have previously been implicated in depression, and that are influenced by antidepressant therapy,” write the authors. Confirmation of the findings in a larger cohort of patients is needed.

Katrina Ray

ORIGINAL ARTICLE Pinto-Sanchez, M. I. *et al.* Probiotic *Bifidobacterium longum* NCC3001 reduces depression scores and alters brain activity: a pilot study in patients with irritable bowel syndrome. *Gastroenterology* <http://dx.doi.org/10.1053/j.gastro.2017.05.003> (2017)