

LIVER

Prebiotics and probiotics show promise as a therapy for hepatic encephalopathy?

Hepatic encephalopathy is caused by the accumulation of gut-derived toxic substances, such as ammonia, in the bloodstream that are normally removed by the liver. Treatment usually consists of purgative ammonia-lowering therapy, such as the disaccharide lactulose, and/or nonabsorbable antibiotics. Mariano Malaguarnera and colleagues from the

University of Catania, Catania, Italy, have now shown that the combination of a probiotic and a prebiotic is an effective alternative to treatment with lactulose.

125 patients with chronic hepatitis, mental state grade 1 or 2 hepatic encephalopathy and hyperammonemia were randomly allocated to receive either *Bifidobacterium* and fructo-oligosaccharides or lactulose for 60 days. Psychometric tests (to assess psychomotor speed and precision, visual perception, visuo-spatial orientation, visual construction, concentration, attention and memory), electroencephalograms (to assess neurophysiological function) and an assay to assess the serum concentration of ammonia were performed for all patients at 30 days and 60 days.

Both lactulose and treatment with *Bifidobacterium* and fructo-oligosaccharides significantly decreased serum levels of ammonia and significantly improved mental function as assessed by psychometric tests at 30 days and 60 days. *Bifidobacterium* and fructo-oligosaccharide treatment significantly improved psychometric test scores

and significantly decreased serum levels of ammonia compared with lactulose treatment. Improvement in neurophysiological function was seen in only a few patients in both groups. No adverse effects were observed in the *Bifidobacterium* and fructo-oligosaccharides group, but occasional abdominal pain, cramping, diarrhea and flatulence were seen in the lactulose group.

“We have shown that *Bifidobacterium* and fructo-oligosaccharides favorably impacts on the main cognitive abnormalities of hepatic encephalopathy. The treatment with *Bifidobacterium* and fructo-oligosaccharides is an alternative to the use of lactulos in patients with cirrhosis. We plan to further investigate the dose–response effects of probiotic plus prebiotic therapy for this condition”, comments Malaguarnera, corresponding author on the study.

Ezzie Hutchinson

Original article Malaguarnera, M. et al. *Bifidobacterium* combined with fructo-oligosaccharide versus lactulose in the treatment of patients with hepatic encephalopathy. *Eur. J. Gastroenterol. Hepatol.* 22, 199–206 (2010)



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