

**Conclusions** This study indicates that fructans induce a significantly lower intragastric pressure response in the healthy state, when compared to the other FODMAPs and glucose. Unravelling the sensory, neural and/or hormonal pathways involved in the effect of fructans on gastric physiology require further mechanistic studies. The findings also offer opportunities to identify whether ingestion of fructans contribute to symptoms associated with impaired gastric accommodation seen in functional GI patients, including irritable bowel syndrome.

**Disclosure of interest** The authors declare that they have no competing interest.

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## Abstract 5

### Oral administration of a Spirulina extract protects old mice against hepatic “ammaging”



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**Introduction and aim** The process of aging predisposes to hepatic functional and structural impairment leading to inflammation – called inflammaging – and favours non-alcoholic fatty liver disease. Spirulina is a cyanobacterium within the Oscillatoraceae family, which is used as a food additive. Previous studies suggest the beneficial effects of Spirulina on immune functions and against non-alcoholic fatty liver disease, inflammatory disorders, hyperglycaemia and hypercholesterolaemia in mouse models of metabolic syndrome. The aim of the present study was to test the potential hepatoprotective effects of Spirulina extract supplementation in aged mice and to determine whether these effects can be related to a modulation of the gut microbiota.

**Material and methods** Male C57Bl6J mice of 3- and 24-months old were fed a control diet supplemented with or without 5% Spirulina extract (Biores, Belgium) during 8 weeks.

**Results** Aged mice exhibited inflammation and oxidative stress in the liver tissue (higher expression of TNF-, IL-6, IL-1beta, MCP-1, CD68, COX-2, CD11c, TLR4, NADPH oxidase) as compared to mice of 3 months. The supplementation with Spirulina extract reduced those hepatic inflammatory and oxidative markers in 24-months mice. Interestingly, the expression of transcription factor involved in immune system regulation (FoxP3 in T regulatory cells) and the expression of antimicrobial peptide (Reg3gamma) were upregulated in the ileum of Spirulina-treated mice. Combination of pyrosequencing and qPCR analyses of the 16S rRNA gene revealed a decrease in total bacteria and – among specific changes of gut microbiota composition – an increase in lachnospiraceae population by Spirulina treatment.

**Conclusions** Our study shows for the first time that the oral administration of a cyanobacterium (Spirulina) is able to modulate the gut microbiota, to activate immune system in the gut, thereby improving hepatic inflammation in aged mice. Those data allow envisaging new therapeutic tools, based on gut microbes–host interactions, in the management of systemic diseases, such as non-alcoholic fatty liver disease.

**Disclosure of interest** The authors declare that they have no competing interest.

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## Abstract 6

### Home parenteral nutrition in patients with postbariatric surgery complications



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**Introduction and aim** Obesity is a worldwide health problem. Bariatric surgery is becoming one of the most commonly used methods for fighting obesity and its associated comorbidities. Any type of bariatric surgery techniques may induce early or late complications that may require a nutritional support. The aim of this retrospective observational study is to determine the indications for home parenteral nutrition in patients who developed post-bariatric surgery complications and the outcome.

**Material and methods** A specific questionnaire was designed by the ESPEN HAN/CIF working group and submitted to centres administering home parenteral nutrition. This questionnaire included: patients' demographics, type of surgery, BMI before surgery and at start of home parenteral nutrition, indications for home parenteral nutrition (early within 2 months after surgery or late), including technical and nutritional complications, outcome, parenteral nutrition regimen, complications. Patients were retrospectively included from January 2008 to June 2014.

**Results** Eighteen centres answered, covering a total of 2880 patients during this period, 77 of whom had had bariatric surgery (65 females; mean age  $51 \pm 7$  years); gastric by-pass was performed in 69% of the patients; the mean BMI was 44.4 and 23.2 before surgery and at start of home parenteral nutrition, respectively. Indications for home parenteral nutrition were early complications in 17 cases and late complications in 60 cases. Early complications were mostly anastomotic leakage/fistula; late complications were hypoalbuminemia, vitamins, trace elements deficiencies. Out of 77 patients, 16 needed a surgical reintervention, 29 were weaned off home parenteral nutrition but six died (causes unrelated to home parenteral nutrition). During the study period, 58% of the patients were rehospitalized and central venous complications were observed in 41%. Diabetes mellitus was described in 17 patients out of 77. Home parenteral nutrition was supportive in 60 patients and exclusive in 17 patients (mean caloric intake:  $23 \pm 6$  kcal/k BW/day and 1.2 g/kBW/day). Only seven patients out of 77 had professional activities while on home parenteral nutrition.

**Conclusions** This is the largest observational multicenter study that describes the use of home parenteral nutrition in patients with post-bariatric surgery complications. Severe hypoalbuminemia is a major late complication. Rate of rehospitalisation and CVC infection are high. Home parenteral nutrition may be a “bridge therapy” before surgical revision. The high mortality rate reflects the complexity of these cases.

**Disclosure of interest** The authors declare that they have no competing interest.

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## Abstract 7

### Use of extracorporeal membrane oxygenation during acute respiratory distress syndrome associated with impaired tolerance to enteral feeding



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**Introduction and aim** Veno-venous extracorporeal membrane oxygenation (ECMO) is increasingly being used for the treatment of severe acute respiratory distress syndrome. However, the tolerance to enteral feeds might be impaired during ECMO for several reasons, including gut hypoperfusion and the frequent need for sedation and muscle paralysis. The objective of this study was to compare the tolerance to enteral feeding assessed by the gastric residual volume in patients with severe acute respiratory distress syndrome treated with or without ECMO, and to search for an association between gastric residual volume and the amount of vasopressors, sedatives and neuromuscular blocking agents used.