

lated by the chi-squared test, and associations were estimated by the OR with 95% CI. Statistical analyses used Epidat version 3.1.

We found no evidence of associations between idiopathic achalasia and the NOS2A rs1060826 single nucleotide polymorphism (TT vs. carriers of allele G; OR = 0.88, 95% CI 0.60–1.29, $P = 0.52$) (Table 1). We observed, similar to the earlier study, a lower frequency of the genotype AA in achalasia than in controls (18 vs. 20%); however, in a pooled analysis, this difference did not reach statistical significance ($OR_{MH} = 0.79$, $P = 0.18$). Therefore, it is possible to rule out a critical role of the NOS2A rs1060826 single nucleotide polymorphism in the genetics of idiopathic achalasia, as this study has 80% power to detect an OR of 1.60 for an AA homozygous effect and of 1.36 for an allelic effect. In summary, our data suggest that the studied polymorphism does not play a major role in the susceptibility to suffer from idiopathic achalasia in our population.

CONFLICT OF INTEREST

Guarantor of the article: Ana González Vigo, PhD.

Specific author contributions: Genotyping, statistical analysis, planning of the study, and writing of the manuscript: Ana González Vigo; participation in writing the manuscript: Alfonso Martínez; participation in planning the study and critical revision of the manuscript: Emilio G. de la Concha and Elena Urcelay; participation in sample collection and revision of the manuscript: Antonio Ruíz de León. All the authors have approved the final draft submitted.

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Bacillus clausii as a Treatment of Small Intestinal Bacterial Overgrowth

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To the Editor: Small intestinal bacterial overgrowth (SIBO) is a common clinical condition due to an increase in the level of microorganisms, in excess of 10^6

colony-forming units/milliliter of intestinal aspirate, and/or of colonic-type bacteria within the small intestine (1). Empirical courses of broad-spectrum antibiotics are the treatment of choice for SIBO decontamination at present (1,2). Probiotics may play an antibacterial role on gut bacteria as a result of multiple mechanisms. *Bacillus clausii* is a probiotic showing some unique properties: resistance to commonly used antibiotics; sporogenic activity to vegetative forms in the intestinal tract; adherence to intestinal wall; secretion of antimicrobial substances active against gram-positive bacteria; and immunomodulatory activities (3).

The aim of this study was to assess both efficacy and tolerability of *B. clausii* for SIBO decontamination.

Consecutive outpatients referred to our Gastroenterology Unit for chronic gastrointestinal symptoms (bloating, flatulence, abdominal discomfort/pain, and diarrhea) were evaluated. All of the patients underwent a hydrogen glucose breath test (GBT) under standard conditions. The test was considered as indicative of the presence of SIBO when the peak, that is the increase over the baseline of hydrogen levels, was >12 parts per million (4). Major organic gastrointestinal disorders were ruled out, as reported in an earlier study (5). Patients with abnormal GBT were included in the study after written informed consent. The GBT was repeated 1 month after the end of therapy in all the patients to assess SIBO decontamination. The primary outcome was the SIBO decontamination rate. Secondary outcomes were patient compliance and incidence of side effects. Poor compliance was defined as $>20\%$ of vials returned. Side effects were defined as the occurrence of “adverse experiences,” that is, clinical findings or patients’ complaints, which were not present in the 24h before enrollment. Participants in the study underwent treatment with *B. clausii* (each preparation containing 2×10^9 spores, Enterogermina, Sanofi-Synthelabo OTC, Milan, Italy), one vial three times a day for 1 month. A total of 40 patients (14 men, mean age 30 ± 15 years) were enrolled.

No dropout was observed during the treatment. The GBT normalization rate was 47% (19/40). The overall compliance was 95%. Only one patient reported side effects during the treatment (constipation).

This is the first study, to the best of our knowledge, that has tested the probiotic *B. clausii* for SIBO decontamination. The GBT normalization rate achieved with *B. clausii* is comparable to that observed with many antibiotics. In fact, trials assessing the decontamination rate of a single course of a broad-spectrum antibiotic showed normalization of breath tests in 20–75% of SIBO patients (1,2). On the other hand, the treatment by *B. clausii* was extremely safe and well tolerated, as only one patient reported side effects without abandoning the study.

These preliminary results suggest that *B. clausii* could represent a promising, easily handled and well-tolerated treatment option for SIBO decontamination. As SIBO is a common clinical condition associated with high recurrence rate after successful decontamination (1,5), the availability of a treatment alternative to antibiotics could reduce both the risk of antibiotic resistance and the incidence of side effects. These data should be confirmed by future interventional trials in patients affected by SIBO comparing *B. clausii* with absorbable and non-absorbable broad-spectrum antibiotics and/or placebo.

CONFLICT OF INTEREST

Guarantor of the article: Antonio Gasbarrini, MD.

Specific author contributions:

Maurizio Gabrielli and Ernesto Cristiano Lauritano had the original idea for the study, designed and organized the protocol. Ernesto Cristiano Lauritano, Emidio Scarpellini, Andrea Lupascu, and Veronica Ojetti included and followed patients in the study. Maurizio Gabrielli and Nicolò Gentiloni Silveri performed the statistical analysis of the data. Maurizio Gabrielli and Antonio Gasbarrini wrote the manuscript. Giovanni Gasbarrini and Antonio Gasbarrini critically reviewed the paper.

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The Combination of Annular Pancreas and Duodenum Inversum Presenting With Delayed Gastric Emptying, Pain, and Feeding Intolerance

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To the Editor: Annular pancreas is a congenital anomaly that consists of pancreatic tissue partially or completely encircling the descending portion of the duodenum (1). “Duodenal inversum” is an infrequent anomaly of duodenal rotation and fixation that is characterized by a clockwise rotation of the proximal duodenum (2). Duodenal inversum is an infrequent anomaly, and association with annular pancreas is an extremely rare

occurrence. The authors present a case of annular pancreas with duodenal inversum observed in a 38-year-old patient who presented with duodenal obstruction that was treated by a partial Ladd’s procedure and gastrojejunostomy.

A 38-year-old woman developed chronic symptoms of crampy abdominal pain and fullness after eating, resulting in weight loss. She experienced a feeling of massive enlargement of her abdomen after meal, without vomiting. For the past 2 months, she had had practically continuous pain when taking even liquids. On admission, physical examination was essentially negative. Body weight was 41 kg, and she appeared to be in a fair state of nutrition. Esophagogastroduodenoscopy with biopsies demonstrated only a large amount of bile in the stomach and moderate focal duodenitis in the first portion of the duodenum and duodenal stenosis in that area. An upper gastrointestinal barium-contrast study was performed and duodenal inversum was diagnosed (**Figure 1**). A 10-month trial of medical management started, but her symptoms did not improve. The patient then opted for surgical exploration. At surgery, the duodenum was found to have an abnormal attachment to the retroperitoneum with mesenteric fixation bands causing a kink at the junction of the second and third portions of the duodenum. In the second portion of duodenum, we found a ring-shaped pancreatic tissue that encircled the duodenum, suggesting annular pancreas. The first portion of the duodenum was markedly dilated, as seen at upper gastrointestinal, and the third portion of the duodenum folded behind the second portion, in front of the hepatoduodenal ligament. The duodenum was mobilized and a partial Ladd’s procedure and gastrojejunostomy was performed. Postoperatively, the patient recovered satisfactorily, and she has had no pain or feeding intolerance since the operation and has gained weight and tolerated solid foods well.

The coexistence of annular pancreas with a number of other congenital anomalies has been well documented. The most common congenital chromosomal anomaly associated with annular pan-