



REVISTA DE GASTROENTEROLOGÍA DE MÉXICO

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SHORT COMMUNICATION

Fecal microbiota transplantation through colonoscopy for the management of severe refractory irritable bowel syndrome: Preliminary results

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KEYWORDS

Fecal microbiota transplantation;
Irritable bowel syndrome;
Colonoscopy;
Treatment;
Microbiota

Abstract Recent studies have explored the role of the microbiota in disorders of gut-brain interaction, opening pathways for therapies, such as dietary adjustments, probiotics, and fecal microbiota transplantation (FMT). We present herein a pilot study on 4 patients with severe irritable bowel syndrome (IBS), refractory to conventional treatment, in which FMT through colonoscopy showed improvement in pain, bloating, and stool consistency that was maintained during the 6-month follow-up. To establish the broader clinical application of FMT, more research on its efficacy according to instillation site and patient results is needed.

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PALABRAS CLAVE

Trasplante microbiota fecal;
Síndrome de intestino irritable;
Colonoscopia;
Tratamiento;
Microbiota

Trasplante de microbiota fecal mediante colonoscopia para el manejo del síndrome de intestino irritable refractario: resultados preliminares

Resumen En estudios recientes se ha investigado el rol de la microbiota en los trastornos del eje cerebro-intestino, abriendo posibilidades para terapias como ajustes dietéticos, probióticos y el trasplante de microbiota fecal (TMF). Presentamos aquí un estudio piloto de 4 pacientes con síndrome de intestino irritable (SII) severo y refractario a tratamiento convencional, donde el TMF mediante colonoscopia mostró mejoría en el dolor, la distensión y la consistencia de las heces, mantenidas durante 6 meses de seguimiento. Es necesario realizar más investigaciones sobre la eficacia según el sitio de instilación y los resultados en pacientes para establecer su aplicación clínica más amplia.

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Introduction

Recently published articles have described¹ how understanding the role of the microbiota in disorders of gut-brain interaction has opened new therapeutic alternatives for these complex conditions.¹ Alternatives range from diet, prebiotics, probiotics, postbiotics, and antibiotics to fecal microbiota transplantation (FMT). Irritable bowel syndrome (IBS) is one of the most common disorders of gut-brain interaction in the general population.² Its pathophysiology is multifactorial, including alterations in the microbiota, as previously mentioned. Its management consists of lifestyle changes, the use of neuromodulators, probiotics, antibiotics, and complementary therapies. In some refractory cases, FMT has been suggested as a possible alternative, although international guidelines still exclusively recommend it in an experimental context.³ The greatest experience with FMT is in the treatment of recurrent *Clostridioides difficile* (*C. difficile*) infection, where its efficacy and safety rates have established it as the gold standard treatment.⁴ We recently published our group's experience in this context⁵ and now wish to share our experience with transplants performed on patients with treatment-refractory IBS.

Materials and methods

We conducted a descriptive, retrospective study on a series of cases with severe refractory IBS treated with FMT via colonoscopy. The patients included in our study met the following criteria: a) diagnosis of IBS based on the Rome IV criteria; b) comprehensive laboratory workup including complete blood count, celiac disease screening, upper endoscopy, and colonoscopy with stepwise biopsies revealing no significant findings; and c) poor or no response to standard therapies including neuromodulators, antispasmodics, nutritional management, mindfulness therapy, rifaximin and/or probiotics. Symptom severity was assessed using the Irritable Bowel Syndrome Severity Scoring Sys-

tem (IBS-SSS). Patients were followed post-FMT with clinical assessments at 1, 3, and 6 months. Donors meeting the clinical criteria underwent blood and stool tests as per international guidelines.³ FMT was performed via colonoscopy in all 4 patients, using a fresh stool sample from the donor obtained no more than 6 hours prior to transplantation, with at least 50 g diluted in 300 ml of saline solution; 100 ml were instilled in the distal ileum, 100 ml in the cecum, 75 ml in the transverse colon, and 25 ml in the left colon. After the procedure, 4 mg of loperamide were prescribed, and follow-up appointments were scheduled with the nutrition team and medical staff of the neurogastroenterology unit.

Ethical considerations

This study was approved by the institutional Ethics Committee and the University of Los Andes (CEC Folio 2023046) and complies with the ethical guidelines of the 1975 revision of the Declaration of Helsinki. All patients included in the study provided written informed consent for the procedure and authorized the publication of their data. The authors declare that this article contains no personal information that could identify the patients.

Results

We included 4 patients with severe refractory IBS: 2 with diarrhea-predominant IBS and 2 with constipation-predominant IBS, with an average of 285 points on the IBS-SSS scale (Table 1). All patients had been treated with at least two neuromodulators, probiotics, and antispasmodics during crises. Additionally, all patients had small intestinal bacterial overgrowth (SIBO) demonstrated on a lactulose hydrogen breath test (LHBT), which was treated up to two times with rifaximin and/or metronidazole, with a post-treatment negative LHBT.

At one-month post-FMT, the IBS-SSS score decreased to an average of 250 points. The primary improvement was a decrease in the visual analog scale for pain and bloat-

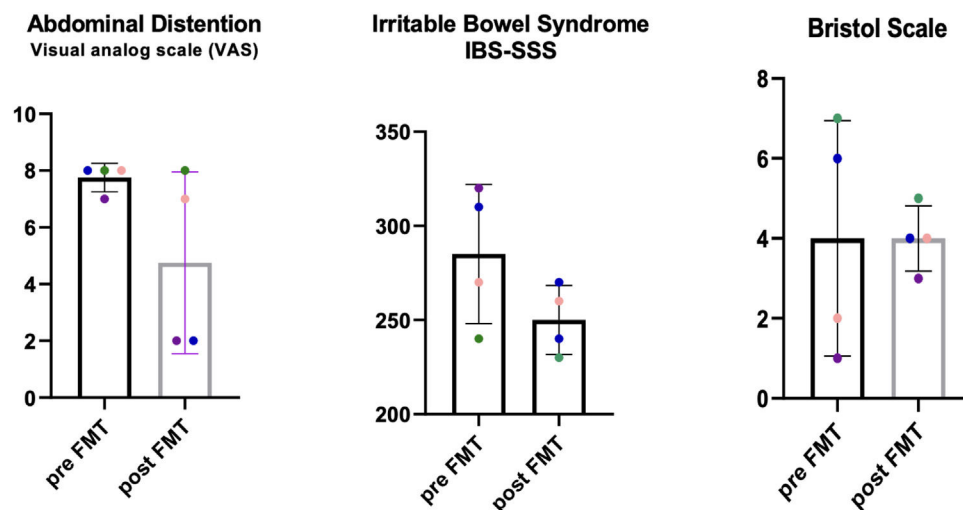


Figure 1 Changes in abdominal distention, irritable bowel syndrome severity scoring system (IBS-SSS), and Bristol stool scale of patients before and after fecal microbiota transplantation (FMT).

Table 1 Characteristics of the 4 patients in our case series and their outcomes post-fecal microbiota transplantation.

Sex; age	IBS subtype	Others	Antibiotic pre-FMT	IBS-SSS pre-FMT	Bristol pre-FMT	VAS bloating pre-FMT	FMT protocol used (mg/ml)	IBS-SSS post-FMT	Bristol post-FMT	VAS bloating post-FMT
M;19	IBS-D	SIBO	RFX	310	6	8	67/300	240	4	2
M;24	IBS-D	SIBO	RFX, MTZ, Fluconazole	240	7	8	80/300	230	5	8
M;34	IBS-C	IMO	MTZ	320	1	7	80/300	270	3	2
F;59	IBS-C	SIBO	RFX, MTZ	270	2	8	80/300	260	4	7

FMT: fecal microbiota transplantation; IBS: irritable bowel syndrome; IBS-SSS: irritable bowel syndrome severity scoring system; IMO: intestinal methanogenic overgrowth; MTZ: metronidazole; RFX: rifaximin; SIBO: small intestinal bacterial overgrowth; VAS: visual analog scale.

ing, with two of the four patients achieving normalization of stool consistency, according to the Bristol Stool Scale. These results were maintained during the 6-month follow-up period (Fig. 1).

Discussion

FMT has the potential to manage dysbiosis associated with IBS. Recent meta-analyses have yielded mixed results,⁶ but a notable trial employing FMT from a super-donor, administered by way of the upper gastrointestinal tract, demonstrated superior efficacy compared with placebo, with over 75% of patients reporting sustained benefits.⁷ Microbiota composition is known to vary among ethnicities and geographical groups due to dietary patterns, lifestyle, and genetic factors.⁸ Our validated local observations suggest the therapeutic promise of FMT. Studies have shown better results with FMT delivered to the ileum in patients with *C. difficile* infection⁹ but effectiveness in patients with IBS needs to be confirmed by further analysis. Additionally, the acceptability of this technique in our patients was good, with all of them stating they would repeat the procedure if necessary. This strategy should still be used in the research stage, and when established treatments have failed, as was the case in our 4 patients. However, studies with a larger number of cases, a longer follow-up period, and a placebo group (autologous transplant, as done by other research groups) are imperative for a comprehensive evaluation.

Financial disclosure

No financial support was received in relation to this article.

Conflict of interest

The authors declare that there is no conflict of interest.

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