Gastrointestinal & Digestive System

Laszlo M, J Gastroint Dig Syst 2014, 4:2
http://dx.doi.org/10.4172/2161-069X.1000183

Case Report Open Access

Full Clinical and Endoscopic Remission Following Fecal Microbiota Transplant with Moderate-Severe Treatment-Resistant Ulcerative Colitis

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Received Date: Mar 11, 2014 **Accepted Date:** Apr 25, 2014 **Published Date:** Apr 30, 2014

Abstract

Fecal microbiota transplantation (FMT) from healthy donors, is an effective alternative for treatment of Clostridium difficile–associated disease, it is being considered for several disorders such as inflammatory bowel disease, irritable bowel syndrome, and metabolic syndrome.

A 61 year old male with extensive ulcerative colitis since 2010 under biologic therapy from 2012 and with several acute relapses under treatment. The patient has been treated with FMT, clinical and biological remission was achieved.

This case highlights the value of characterizing temporally resolved microbiota dynamics for a better understanding of FMT efficacy and provides potentially useful diagnostic indicators for monitoring FMT success in the treatment of ulcerative colitis.

FMT seems to be a promising alternative treatment of frequent relapses for selected cases of ulcerative colitis

Keywords: Fecal microbiota; Ulcerative colitis; Biologic therapy; Relapse

Introduction

Approximately 4 million people worldwide, especially in the USA and Europe are affected by chronic intestinal bowel disease (IBD), especially Crohn disease (CD), ulcerative colitis (UC). IBD seem to be a consequence of harmful interactions of the intestinal microbiota, epithelium and immune system of genetic susceptible persons. Modern molecular analysis has demonstrated that patients with IBD have a low-diversity distorted intestinal microbiota [1-5].

The idea of using faeces for a gut microbiota (as opposed to using a defined bacterial community) is an approach we have right now to treat every patient. However, it is known that there is a large variability in the gut microbiota from person to person. More research is needed to understand the variability that people exhibit in their microbiota and how FMT could potentially lead to disease in order to help minimize these unintended consequences [4].

Case Report

61 year old male known with extensive moderate-severe ulcerative colitis since 2010 (clinical, biological, endoscopic and histological diagnosis) treated successive with corticosteroids, 5 ASA, Azathioprin with clinical remission of variable duration. In 2012 due to symptom worsening biologic therapy with Infliximab (induction and then 400mg every 8 weeks was started). After about 1 year of remission under biological treatment a new acute episode appears with rectal bleeding, fever, abdominal pain. Biologically an inflammatory syndrome WBC=12500; ESR=64-102, CRP 3.85 mg/dl). Colonoscopy revealed, areas of ulceration, erythema, spontaneous bleeding and pseudo inflamatory polyps on the descending and transverse colon. The coproculture was negative, serum level of Infliximab was established (negative antibodies), which was below the lower limit at 7 weeks after administration. For this reason the decision to shorten de administration period to every 6 weeks is taken. After the first administration Infliximab 400 mg at 6 weeks, 5 ASA, clinical, biological markers start to improve. After about 1 month rectoragy episodes, abdominal pain, reactive CRP=2 reappear, with negative coproculture. Taking in consideration the persistence of sympthoms, the new strategy of therapy is taken into consideration: fecal microbiota transplant. As a donor a first degree relative is selected (son). Tests for Hepatitis A, B, C, HIV, parasites, Clostridium Difficile, corproculture are taken and all the results are negative. The donor had no personal pathologic antecedents. The patient and donor were informed of potential risks, benefits and experimental status of the fecal microbiota transplant and the informed consent was signed. The administration method was transcolonic during colonoscopy, after standard preparation (Fortrans split dose). A suspension of faeces (faeces + 0.9% sterile saline solution up to a volume of 400-425 ml) was prepared. This suspension was poured into a sterile vial and administered within one hour. The patient took 2 Loperamide tablets immediately after FMT and 6 hours afterwards in order to reduce gut motility. After FMT the patient was encouraged to consume solid food and stay in supine position. A transient increase in CRP=3.5 mg/dl was observed in the first week after transplantation fecal , there was no fever or other adverse effects. About 2 weeks after FMT the CRP was within normal values. The post FMT followup was 5 months (March 2014), clinical and endoscopic remission (from Mayo 3 to Mayo 1) was

achieved, during the followup symptoms consisted of 1-2 stools/day without pathological products, without abdominal pain or inflamatory syndrome. Immediately after FMT the biological therapy was stopped. The current treatment is only 5- ASA 2 g/day. (Table 1)

Parameter	Before FMT	After FMT			
		1 week	1 month	3 month	5 month
Body mark	70	71	74	77	82
Haemoglobin	13	13.9	14	15.2	15
Erythrocyte sedimentation rate	76-104	60-100	46-88	34-62	21-39
C-reactive protein	3	3.87	1.6	0.96	0.37

Table 1: Clinical parameter changes of the patient during follow-up

Discussion

The concept of fecal microbiota transplantation has been used in traditional Chinese medicine at least since the 4th century. The usage of probiotics in IBD is indicated with promising results, especially in keeping remission [2-3].

Studies of FMT in patients with active UC are rare and restricted to clinical case reports. Here, we give a detailed account of clinical outcomes of FMT in a case with moderately to severely chronic active UC refractory to IBD standard therapies. In literature only 5 cases of UC which underwent FMT are described. A positive clinical response was observed after 12 weeks in one patient and one case of newly diagnosed CD [1].

FMT is also called fecal bacteriotherapy, it has been occasionally used for

treatment of Clostridium difficile–associated diarrhea and pseudomembranous colitis with great success. Two recent systematic reviews of 317 patients across 27 case series and 124 patients across 7 case series highlighted a disease improvement or resolution rate of 92% and 83%, respectively, with very few adverse effects. In contrast, FMT has rarely been used for IBD management [3-4].

We know that the gut microbiota is associated with many gastrointestinal diseases, including obesity,inflammatory bowel disease and colon cancer. In addition, links have

been made with correlating an altered gut microbiota to neurologic and autoimmune disorders [6]. These studies provide only correlations between the microbiota and disease; we still do not understand the mechanism behind these disease states and the role that the microbiota specifically plays. We do not know whether it is a specific bacterium or a community of bacteria that cause the disease [1-11].

The recent progress in the standardization of FMT is an important advancement for the field. However, some have argued that use of this treatment is expanding too rapidly without proper review and testing of the procedure [8-13].

Conclusion

The gut microbiota is considered to constitute a “microbial organ” which plays a pivotal role in the intestinal diseases. The gut metagenome sequencing showed that over 99% of the genes are bacterial [4].

Here, we report the successful treatment of standardized FMT as a rescue therapy for a case of refractory UC.

Understanding the part that microbial populations play in GI disease is fundamental to the ultimate development of appropriate therapeutic approaches. The targeting of specific components of the gut microbiome will potentially allow the removal of the harmful organisms and enrich the beneficial microbes that contribute to our health [1-5].

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