Durability and Long-Term Clinical Outcomes of Fecal Microbiota Transplant (FMT) Treatment in Patients with Recurrent C. difficile Infection

Yafet Mamo, Emory University
Michael Woodworth, Emory University
Kaitlin Sitchenko, Emory University
Tanvi Dhere, Emory University
Colleen Kraft, Emory University

Journal Title: Open Forum Infectious Diseases
Volume: Volume 4, Number suppl_1
Publisher: Oxford University Press (OUP) | 2017-10-04, Pages S384-S385
Type of Work: Article | Final Publisher PDF
Publisher DOI: 10.1093/ofid/ofx163.954
Permanent URL: https://pid.emory.edu/ark:/25593/s6fx8

Final published version: http://dx.doi.org/10.1093/ofid/ofx163.954

Copyright information:
© The Author 2017. Published by Oxford University Press on behalf of Infectious Diseases Society of America.
This is an Open Access work distributed under the terms of the Creative Commons Attribution-NonCommercial-NoDerivatives 4.0 International License (http://creativecommons.org/licenses/by-nc-nd/4.0/).

Accessed November 9, 2019 8:17 PM EST
1255. Probiotics to Reduce Hospitalization Rates of Clostridium difficile Infection: Clinical Experience in a Tertiary Care Center

Maggie Box, PharmD, BCPS, AQ-ID1; Kristine Ortwine, MS, MPH2 and Scripps Translational Science Institute, La Jolla, CA, 3Majestic Healthcare, San Diego, California

Session: 148. C. difficile: From the Bench to Bedside
Friday, October 6, 2017: 12:30 PM

Background. There is conflicting clinical data regarding the efficacy of probiotics to prevent Clostridium difficile infection (CDI). The goal of this study is to compare rates of hospital acquired Clostridium difficile infection (HA-CDI) among patients receiving antibiotics with or without concomitant administration of probiotics.

Methods. This retrospective chart review compares hospitalized patients who received antibiotics alone vs. antibiotics plus a multi-strain probiotic preparation of lactobacillus over a six month time period. Probiotics were given at the discretion of the physician. The primary outcome was incidence in HA-CDI (defined as onset after being hospitalized > 48 hours).

Results. A total of 1,576 patients met selection criteria, with 927 patients receiving antibiotics alone and 649 patients receiving antibiotics plus probiotics. HA-CDI rates were 0.9% and 1.8% (P = 0.16), respectively. In a subgroup analysis of patients in the antibiotic only group, patients who received similar antibiotic exposure as the probiotics group (n = 284) had no difference in rates of HA-CDI (1.8% vs. 1.8%; P = 1.0).

Conclusion. Probiotic administration did not decrease rates of HA-CDI in our institution. We recommend prioritizing resources to other CDI reduction measures such as decreasing antibiotic exposure and preventing transmission.

Disclosures. All authors: No reported disclosures.

1256. Efficacy of Oral Vancomycin, Oral Metronidazole, or IV Metronidazole Prophylaxis at Reducing the Risk of Clostridium difficile Recurrence

Matthew O’Connell, PharmMD1; Iudhan Slish, Pharm. D., BCPS2 and Mark Shelly, MD, FSHEA1, 2Candidate 2018, Wegmans School of Pharmacy, Rochester, New York, 3John Fisher School of Pharmacy, Rochester, New York, 4Infectious Disease, University of Rochester Medical Center, Rochester, New York

Session: 148. C. difficile: From the Bench to Bedside
Friday, October 6, 2017: 12:30 PM

Background. Secondary prophylaxis (SP) for Clostridium difficile infection (CDI) with oral vancomycin or oral/IV metronidazole when initiating antibiotics is common, though few studies are available to support this practice. The purpose of this study was to assess the efficacy of prophylaxis within a year of index CDI.

Methods. This retrospective chart review looks at subsequent courses of antibiotics and CDI in patients with initial positive CDI testing in 2013–16. A positive CDI test within 90 days of antibiotics was a recurrence. The use of antibiotics for SP was noted, along with other factors associated with CDI recurrence. Non-parametric and exact tests were used for univariable analysis. These variables were included in a multivariate proportional hazards model.

Results. We found 597 antibiotic episodes in 230 patients. 130 episodes (21.8%) received secondary prophylaxis. The difference of recurrence rates associated with antibiotics, 9.2% to 10.7%, was not statistically significant. No difference was seen when metronidazole was used, but vancomycin SP reduced the rate to 7.5% (6/80, P = 0.45). Probiotics were associated with a higher rate of recurrence (16.7% vs. 8.9%, P = 0.025). Proton pump inhibitors were also associated with a slightly higher rate of CDI recurrence (13.0% vs. 8.4%).

The rate of relapse fell significantly with increasing time since the index case of CDI by logistic regression (P = 0.011). In multivariate regression, relapse was associated with shorter time from index CDI, shorter durations of antibiotics, and the use of probiotics.

Conclusion. This retrospective study does not support the routine use of metronidazole in subsequent antibiotic courses following CDI. The use of probiotics prior to index CDI increased the rate of CDI relapse in this study. The limitations of this retrospective study do not eliminate the possibility of utility of vancomycin as prophylaxis, but this requires further evaluation.

Disclosures. All authors: No reported disclosures.
1259. Clinical and Economic Evaluation of commercialized Fecal Microbiota Transplant (cFMT) for Patients with Recurrent Clostridium difficile Infection (CDI) in a Large Community Hospital

Ali Hassoun, MD FIDSA FACP1; Jonathan Edwards, PharmD, BCPS AQ-ID2 and Brian Boyett, Pharm. D.2; 1Alabama Infectious Diseases Center, Huntsville, Alabama, 2Huntsville Hospital, Huntsville, Alabama, 3Huntsville Hospital, Huntsville, Alabama

Session: 148. C. difficile: From the Bench to Bedside
Friday, October 6, 2017: 12:30 PM

Background. Recurrent CDI is common despite antibiotic therapy; FMT is effective to reduce recurrent infections. We report our experience with Commercialized FMT (cFMT) products by providing ready-to-use capsules, for oral administration, or solution, for administration via colonoscopy.

Methods. The study was approved by IRB for adult patients with at least 3 episode of recurrent CDI despite antibiotic therapy, patients with severe infection were excluded. cFMT was administered in the hospital or at outpatient center. Each patient was evaluated 8 weeks post-transplant to assess for sustained clinical cure and side effects. The economic impact of cFMT was evaluated using historical data from EHR including: CDI rate, CDI readmission rate, rate of CDI-associated death, cost of CDI admissions, and rate of use of each antimicrobial regimen

Results. 33 patients enrolled (solution/colonoscopy 20 and capsule 13). Mean age was 74 vs. 67 y, female 56% vs. 64%, recurrent episode 4 vs. 3, CDI severity score 1.4 vs. 1.2. 95% (19/20) of patients who received cFMT via colonoscopy experienced resolution of CDI post-FMT (non-RCDI group). Of the remaining 137 eligible patients, 137 (113/137) of patients experienced resolution of RCDI post-FMT (non-RCDI group). In the non-RCDI group, antibiotic use post-FMT for non-C. difficile-related infections was 75% and 38% (P = 0.0004), respectively. PPI use post-FMT was 38% and 31% (P = 0.28), and probiotic use post-FMT was 63% and 41% (P = 0.026) in the RCDI and non-RCDI groups, respectively. There were 18 hospitalizations in the RCDI group and 9 were related to C. difficile complications; of the 36 hospitalizations in the non-RCDI group, only 1 was related to chronic complication of a previous C. difficile infection. Overall, 11% of patients reported improvement or resolution of medical conditions not related to CDI post-FMT while 33% reported diagnosis of a new medical condition or development of new symptoms; none of the new medical conditions or symptoms were attributable to the procedure. In all, 95% of patients indicated willingness to undergo FMT in the future if they experience another bout of C. difficile infection.

Conclusion. cFMT is a highly effective treatment option for CDI with a cure rate, defined as resolution of RCDI post-FMT or recurrence attributable to antibiotic use post-FMT, of 96% (113/117) in the study group. Furthermore, clinical outcomes and patient satisfaction post-FMT indicate the safety of the procedure.

Disclosures. All authors: No reported disclosures.

1261. Weight Changes in Fecal Microbiota Transplant for Clostridium difficile Infection (CDI) in Pediatric Immunocompromised Patients

Natala KwendaKwema, BA1; M. Kyle Jensen, MD2; Andrew Perria, MD, FIDSA, FHEX, FIDSA1; and Leibaeth Doby Knackstedt, MD, FAAFP3; University of Utah

School of Medicine, Salt Lake City, Utah, 2Department of Pediatrics, Division of Gastroenterology, University of Utah School of Medicine, Salt Lake City, Utah, 3Department of Pediatrics, Division of Pediatric Infectious Diseases, University of Utah School of Medicine, Salt Lake City, Utah

Session: 148. C. difficile: From the Bench to Bedside
Friday, October 6, 2017: 12:30 PM

Background. C. difficile is a common cause of bacterial diarrhea, especially in immunocompromised patients. Fecal Microbiota Transplant (FMT) has been shown to be an effective treatment for recurrent and refractory CDI. The outcomes of FMT treatment for recurrent CDI have been well described in adult populations; however, the data for immunocompromised (IC) patients especially among children are limited. We describe the experience of FMT for treatment of CDI in immunocompromised pediatric patients.

Methods. We collected clinical data for IC patients ≤2 years in our pediatric institution who had received FMT for recurrent, refractory, and/or severe CDI. IC patients included those with: solid organ transplantation (SOT) receiving immunosuppressive medications; neoplasm, hematopoietic stem cell transplantation (HSCT); inflammatory bowel disease (IBD) requiring immunosuppressive medication(s).

We collected demographic and clinical data, as well as outcomes, including: resolution of diarrhea, C. difficile relapse, and adverse events within 3 months post-FMT.

Results. We performed 37 pediatric FMT for recurrent, refractory, and/or severe CDI between September 2012 and February 2017. Of these, 12 were immunocompromised: 2 with SOT, 3 with neoplasm and/or HSCT; and 7 with IBD on immunosuppressive medication(s). Median age was 11.9 years old (range 3–16 years). 6 (50%) experienced resolution of diarrhea within 1 week post-FMT, and 9 (67%) were C. difficile-negative within 3 months of FMT (3 patients did not have follow-up testing).

None had C. difficile relapse within 3 months post-FMT. 3 (25%) had adverse event(s) within 3 months post-FMT, 2 of whom had SAEs: 1 had graft rejection at 2 months post-FMT which ultimately required re-transplantation and 1 had aspiration pneumonitis immediately following FMT. 4 (50%) of the IBD patients had disease remission (clinical, biologic, and/or histologic) in the 3 months post-FMT.

Conclusion. FMT appears to be effective and reasonably safe for recurrent CDI in immunocompromised pediatric patients. However, the small numbers limit conclusions, especially about safety. Larger multi-center studies are needed to precisely determine safety and efficacy in this specialized population.

Disclosures. All authors: No reported disclosures.

1262. Weight Changes in Fecal Microbiota Transplant for Clostridium difficile Infection (CDI) in Pediatric Immunocompromised Patients

Dina Hussain, MD1; Marci Drees, MD, MS2; Scott Myerson, MD2; Chad Buffallo, MD, MPH3; Danielle Mosby, MPH4; Christine Herdman, MD5; Fedele Depalma, MD5; Patty McGraw, RN, MS5 and Alfred E. Bacon III, MD5; Medicine, Christiana Care Health System, Newark, Delaware, 6Christiana Care Health System, Newark, Delaware

Session: 148. C. difficile: From the Bench to Bedside
Friday, October 6, 2017: 12:30 PM

Background. Fecal microbiota transplant (FMT) for relapsing Clostridium difficile infections (CDI) allows for rapid repopulation of the colon microbiome and may prevent future relapses. FMT is considered safe, however subsequent impact on weight and metabolism is incompletely understood. Animal studies have shown that alterations in microbiota lead to changes in weight; this has suggested in humans, based on limited anecdotal evidence. This study explores changes in weight associated with FMT.

Methods. We conducted a retrospective observational study of patients who underwent FMT at our 1100-bed community-based academic healthcare system. FMT protocol requires 2 documented CDI relapses and failed vancomycin taper. FMT methods include colonoscopy, EGD and oral capsules. Of note, donor stool (OpenBiome, Boston, Massachusetts) criteria include BMI <30. We conducted chart review for documented provider-measured weights pre- and post- FMT (<1 year), and compared pre-FMT weights to last recorded weight within 1-year period. We also evaluated weights in a subset of patients in the acute (2-6 week post FMT) timeframe.

Results. Between Apr 2014- Oct 2016, 41 patients underwent FMT. Of these, 31 (75%) patients had adequate weight data available for review (Table). Overall patients gained an average 2.4%. During the acute phase, 20 patients (65%) had documented weights; of these 50 lost and 50 gained weight, with overall weight loss of 0.7%.

<table>
<thead>
<tr>
<th>BMI Class, %</th>
<th>Underweight</th>
<th>Normal</th>
<th>Overweight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight change, %</td>
<td>Gain</td>
<td>Loss</td>
<td>Maintain</td>
</tr>
<tr>
<td>&gt;10% loss</td>
<td>11 (65)</td>
<td>6 (35)</td>
<td>6 (35)</td>
</tr>
<tr>
<td>&gt;5% loss</td>
<td>28 (72)</td>
<td>28 (72)</td>
<td>28 (72)</td>
</tr>
<tr>
<td>&gt;5% gain</td>
<td>21 (77)</td>
<td>21 (77)</td>
<td>21 (77)</td>
</tr>
<tr>
<td>Average % of body weight change (among those with changes)</td>
<td>Gain</td>
<td>Loss</td>
<td></td>
</tr>
<tr>
<td>&gt;10% loss</td>
<td>7.7</td>
<td>5.5</td>
<td></td>
</tr>
</tbody>
</table>