Fecal microbiota transplants VS. traditional antibiotics in treating *Clostridium difficile*

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Background & Purpose

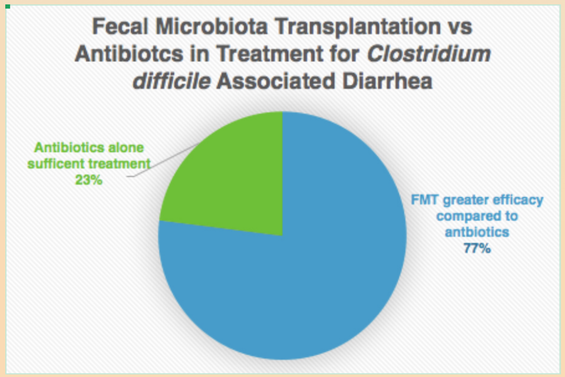
Clostridium difficile infections are the leading cause of antibiotic related diarrhea and colitis (Barlett). In 2011, this bacteria type is estimated to have caused approximately 453,000 infections in the United States. Of these infections approximately 29,300 people died as a result (Lessa). Two options for treatment include additional antibiotic therapy or fecal microbiota transplantation. The purpose of this report is to investigate which is most effective.

Methods

Electronic research was conducted utilizing PubMed along with Google Scholar databases. The search parameters consisted of articles published within the last 10 years, human subjects with recurrent *Clostridium difficile* infection, and those that provided full access to text. Keywords included *Clostridium difficile,* fecal microbiota transplantation, and antibiotics. Articles selected evaluated the efficacy of treatment with fecal microbiota transplantation in reducing the recurrence of *Clostridium difficile* infection and the use of fecal microbiota transplantation in comparison to the use of traditional antibiotic therapy in reducing recurrence. 10 articles met the inclusion criteria and were considered relevant. Meta-analysis and systematic reviews were excluded from the search criteria.

Results

Seventy seven percent of the relevant studies revealed the use of fecal microbiota transplantation via colonoscopy for treatment in patient with *Clostridium difficile* associated diarrhea to be significantly more effective in controlling symptoms when compared to antibiotics alone. Twenty three percent of the relevant studies demonstrated that patients received sufficient treatment for *Clostridium difficile* associated diarrhea with only antibiotics. Of those with successful treatment with fecal microbiota transplantation, around thirty percent required a second transplant. After the transfusions, several studies indicated an increased in fecal bacterial diversity, similar to the healthy donors. No significant adverse events were noted in either of the study groups with regards to symptoms or complications.



Conclusion

Studies reveal that fecal microbiota transplantation (FMT) is a promising breakthrough for the treatment of multiple recurrent *Clostridium difficile* infection compared to prolonged antibiotic therapy. Fecal microbiota transplantation restores the body's normal intestinal flora while antibiotic therapy has been shown to exacerbate microbial imbalance continuing to make the treatment of recurrent *Clostridium difficile* infections more challenging. While there is limited knowledge about the safety and efficacy of FMT delivery, studies suggest that it is greatly accepted and tolerated by patients. In conclusion, *Clostridium difficile* infection continues to be a common problem in US hospitals, where the efficacy of Flagyl is declining and Vancomycin PO continues to be the recommended therapy in severe cases. It is for this reason further research should be conducted to make FMT a more widely accepted treatment alternative.

Final Abstract

BACKGROUND AND PURPOSE: Clostridium difficile infections are the leading cause of antibiotic related diarrhea and colitis with an estimated mortality rate up to 30% (Hota, 305). Traditionally, *Clostridium difficile* infections are treated with antibiotics, usually Flagyl (metronidazole) and Vancomycin; however, an emerging body of evidence is supporting the use of Fecal Microbiota Transplantation (FMT) as a safe, effective new treatment. The purpose of this study is to determine which treatment plan is more effective in the treatment of *Clostridium difficile* infections.

METHODS: A team of Physician Assistant students searched for randomized control trials on Google Scholar and PubMed using search limitations of the past 10 years, human subjects and those that provided free full access to text. Search keywords included *Clostridium difficile* infections, recurrent *Clostridium difficile* infections, fecal microbiota transplantations and antibiotics. 7 studies met all criteria and were used in the investigation.

RESULTS: Of the studies investigated, 77% show that fecal microbiota transplantation is more effective in treating *Clostridium difficile* infections than antibiotic use alone.

CONCLUSIONS: This research indicates that fecal microbiota transplantation is an efficacious and safe solution to costly and dangerous *Clostridium difficile* infections. More research should be conducted to make FMT a more widely accepted and practiced treatment for *Clostridium difficile* infections.

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