

TITLE: SAFETY AND EFFICACY OF FECAL MICROBIOTA TRANSPLANT VS STANDARD CARE ANTIBIOTICS IN TREATMENT OF CLOSTRIDIUM DIFFICILE INFECTION: A SYSTEMATIC REVIEW AND META-ANALYSIS

Bhat, Adnan ; Kumbay, Ajay ; Ahmed, Faizan ; Qasba, Ruman Khurshid ; Haider, Faseeh ; Srivastava, Saloni ; Giri, Dewan ; Makhija, Vatsal ; Panjiyar, Binay Kumar ; Mirza, Tehmasp ; Bhat, Ayesha Bashir ; Giri, Punam ; Gul, Muhammad Hamza ; Saeed, Humza ; Qadri, Rateeba ; Marsool, Mohammed Dheyaa Marsool ; Alzabidi, Lamy ; Saker, Yasmeen ; Miquel-Chambers, Christopher ; Siddiqui, Momina Riaz

PURPOSE / OBJECTIVES

Recurrent Clostridium difficile infections (rCDI) are a significant cause of morbidity, mortality, and burden on the healthcare system. While Fecal Microbiota Transplant (FMT) is emerging as a promising treatment, evidence of its effectiveness is limited. The objective of this study is to determine the efficacy of FMT as compared to standard-of-care antibiotics in achieving the resolution of symptoms and improving patient outcomes.

MATERIAL & METHODS

A Systemic Review of literature databases including PubMed, MEDLINE, Cochrane, Plosone, Science Direct, Google Scholar, Clinical trials.gov, and Embase was conducted from inception to October 2024 for randomized clinical trials (RCT). We included studies that reported parameters of interest including recurrence rate of infection, 30-day mortality, and resolution of symptoms. RevMan was used to perform meta-analysis, and the Mantel-Haenszel Risk Ratio was generated using random effect models.

RESULTS

Of 613 studies assessed, eight studies with a total of 478 patients were included; 7 randomized clinical trials and one clinical trial. FMT was more effective than standard care antibiotics in achieving resolution of symptoms (RR: 1.94, 95% CI: 1.60-2.35; $p < 0.00001$, $I^2 = 76$) and reduction in recurrent CDI (RR: 0.46, 95% CI: 0.25-0.84; $p = 0.01$, $I^2 = 79$). Significant variability was present in these analyses. In addition, FMT significantly reduced mortality (RR: 0.34, 95% CI: 0.18-0.66; $p = 0.001$, $I^2 = 0$) as compared to standard-of-care antibiotics.

Fecal Microbiota Transplant (FMT) outshines standard antibiotics in tackling recurrent Clostridium difficile infections, offering faster symptom relief, fewer recurrences, and lower mortality—proof that a "gut reset" could be the future of CDI treatment!

RESULTS

Figure 1A: Forest Plot of Symptoms Resolution Outcomes

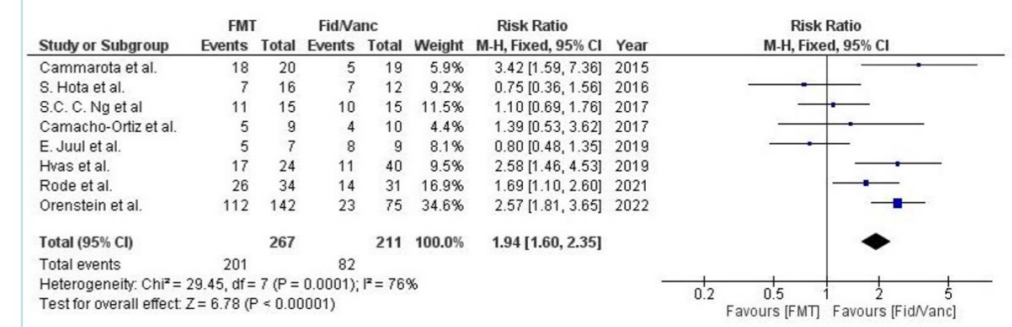


Figure 1B: Forest Plot of Mortality Outcomes

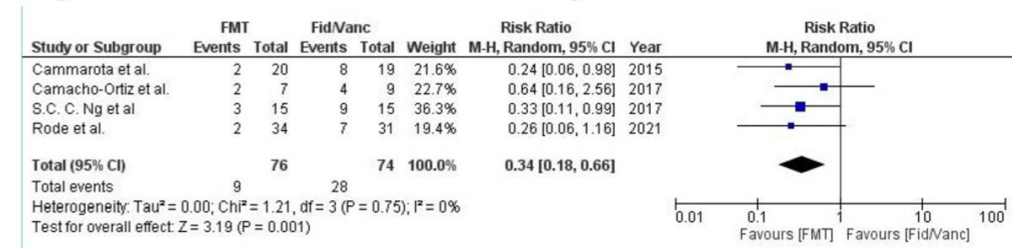
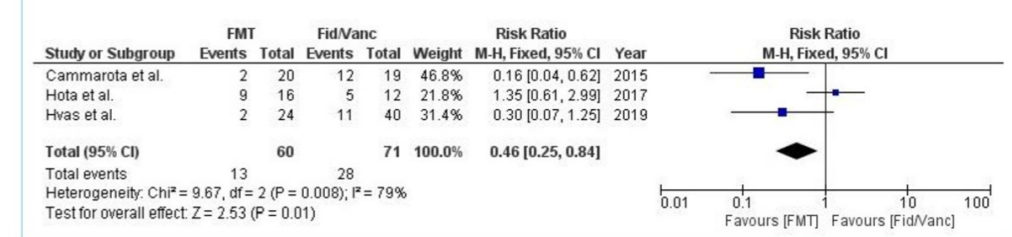


Figure 1C: Forest Plot of Recurrence Rate Outcomes



SUMMARY / CONCLUSION

FMT significantly improves the resolution of symptoms and reduction in recurrent CDI infections than standard care of antibiotics with high heterogeneity in analysis. FMT was more effective in reducing mortality with no variability in analysis; however, more clinical trials are needed to demonstrate its superior efficacy.