〈Others〉

Fecal Microbiota Transplantation: Expanding Therapeutic Horizons in Gastrointestinal and Systemic Diseases

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ABSTRACT Fecal Microbiota Transplantation (FMT) has gained recognition for its remarkable success in treating recurrent Clostridioides difficile infections (rCDI) and is now being explored for a broader range of conditions. A meta-analysis demonstrated that FMT significantly improves clinical and endoscopic remission in ulcerative colitis (UC) patients, with an odds ratio of 4.11 (95% CI: 2.19-7.72) and a safety profile comparable to placebo. Beyond UC, FMT has shown promise in addressing metabolic disorders and neurodegenerative diseases. For instance, it has been linked to improved insulin sensitivity, reduced inflammation in metabolic syndrome, and reduced motor symptoms in Parkinson's disease patients, likely through mechanisms involving the gut-brain axis. These findings highlight FMT's potential across various medical fields. While promising, further research is needed to standardize protocols and confirm long-term efficacy. FMT represents an innovative therapeutic frontier with the potential to transform future healthcare. doi：10.11482/KMJ-E202551037 *(Accepted on January 8, 2025)*
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DEAR EDITOR

Initially recognized for its remarkable success in treating recurrent Clostridioides difficile infections (rCDI), fecal microbiota transplantation (FMT) is currently under the spotlight as a potential game-changer for a broader range of conditions. Recent high-profile research has shed light on its effectiveness, underlying mechanisms, and emerging applications.

Hvas CL *et al.*[1)] conducted a single-center randomized trial for comparing the effects of FMT with those of fidaxomicin and vancomycin. They argued that "in a randomized trial of patients with rCDI, we found the FMT combination superior to fidaxomicin or vancomycin based on endpoints of clinical and microbiological resolution or clinical resolution alone."

Expanding beyond rCDI, Chehade *et al.*[2)] conducted a systematic review and meta-analysis to investigate the efficacy of FMT in treating active ulcerative colitis (UC). Their results demonstrated that compared with placebo, FMT significantly

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improved combined clinical and endoscopic remission with an odds ratio of 4.11 (95% CI: 2.19-7.72). Remarkably, variables such as stool donor, fresh or frozen stool, and different delivery methods exerted no significant effect on remission rates, emphasizing the robust potential of FMT across varying conditions. Moreover, FMT demonstrated no significant differences in adverse events compared with placebo, thereby supporting its safety profile.

Beyond UC, FMT has demonstrated potential in addressing metabolic disorders and neurodegenerative diseases. Almeida *et al.*[3] discussed how FMT may improve insulin sensitivity in metabolic syndrome, with preliminary studies indicating reductions in inflammation and improvements in lipid metabolism. Similarly, emerging evidence links gut microbiota with neurodegenerative disorders such as Parkinson's disease. A pilot study showed that FMT reduced motor symptoms and improved gut motility, suggesting a gut-brain axis mechanism. Nevertheless, these data require further validation through larger trials to establish standardized treatment protocols.

Almeida *et al.*[3] also emphasized the importance of ongoing research to expand the therapeutic scope of FMT to other conditions, including autoimmune diseases, where dysbiosis is critical. For instance, early trials suggest benefits in reducing inflammatory marker levels in conditions such as rheumatoid arthritis.

In conclusion, FMT is no longer merely an experimental therapy—it is a frontier of innovation in healthcare. With its applications expanding to include conditions such as metabolic syndrome and neurodegenerative diseases, the next wave of studies will undoubtedly shape the future of FMT, transforming hope into reality for countless patients worldwide.

SINCERELY

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DECLARATIONS

Competing interests

The authors declare that they have no competing interests.

Author Contributions

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