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Editorial

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Microbiota Therapy: Ready for Clinical Practice?

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Two factors have initiated a huge increase in microbiota research in the last 10 years: the ability to characterize the composition of the human intestinal microbiota via 16S sequencing and later metagenomic sequencing and second the finding that fecal microbiota transplantation (FMT) was able to cure more than 90% of patients with relapsing *Clostridioides difficile* colitis. 16S RNA analyses found changes in microbiota composition in patients with various diseases such as inflammatory bowel diseases, irritable bowel syndrome, graft versus host disease, metabolic diseases, coronary heart disease, depression, autism, rheumatoid arthritis and recently in various cancers, e.g., colorectal cancer. Subsequently, a big number of clinical trials applying FMT in various clinical situations were planned and partially performed. Results of those trials have been encouraging (such as in ulcerative colitis or graft vs. host disease, etc.) but also disappointing in other cases (such as Crohn's disease, etc.).

Different approaches of microbiota therapy have been applied such as unselected FMT, FMT with selected donors, the construction of consortia, single-strain bacteria, or different probiotics. Regarding FMT, different routes of administrations of FMT included naso-jejunal tubes, enemas, or application during colonoscopy and have shown comparable results. Further, various approaches for patient preparation have been suggested such as no pretreatment, antibiotic pretreatment (e.g., with vancomycin) or bowel cleansing under the idea that this would allow a better "engrafting" of the microbiota therapy.

To date, around 10,000 manuscripts have been published on the topic "fecal microbiota therapy" in the last 10 years. Therefore, it is very timely to ask whether microbiota therapy is now "ready for clinical practice" as we do it in this special issue of *Visceral Medicine*. Experts from different fields have contributed to this special issue to answer the abovementioned question. They look at this question from different angles. Highlighted are of course *C. diff.* colitis and inflammatory bowel disease, but also graft versus host disease, Alzheimer's disease and the gut-brain axis, liver disease, and cancer.

Important insights are shared and it is really impressive to see the progress that has been made in this research field in the last years. However, currently, we have to say: FMT is ready for clinical practice only in refractory *C. diff.* colitis. In the other therapeutic fields, we will need more trials, more studies, more data, and further efforts to translate the important findings made so far into clinical practice.

Nevertheless, we think that the overview provided in this special issue of *Visceral Medicine* is very helpful to define targets of further research and to make clear whether the deficits are so far. There is no doubt that we will see microbiota therapy as a new therapeutic option for a number of diseases in the future.

Conflict of Interest Statement

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