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Therapeutic modulation and re-establishment of the intestinal microbiota with fecal microbiota transplantation resolves sepsis and diarrhea in a patient

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Dysbiosis of gut microbiota is probably relevant for the aetiology of sepsis, raising an interesting possibility of microbiota-targeted therapy in sepsis. However, experience with this procedure in sepsis remains limited. Here, we describe the case of a sepsis patient with severe diarrhea who received FMT and report findings. A 29-year-old patient with sepsis and severe diarrhea was enrolled in the study. The fecal suspension from a healthy individual was administered in the patient through a nasoduodenal tube after intestinal microbiota dysbiosis was evidenced by 16S rDNA-based molecular techniques. As expected, the fevers and diarrhea were significantly improved following donor-feces infusion. In the next day, the fever went down and the stool output had a marked reduction. Blood cultures became sterile. At 21 days the stool volume declined to less half before FMT. Importantly, the patient's microbiota strikingly shifted toward that of the donor, showing increased similarities of 49.1 and 40.5% at 9 and 21 days. The bacterial species in Firmicutes and Bacteroidetes, including *Eubacterium spp., Lactococcus garvieae, Weissella koreensis,* and *Bacteroides spp*., were expanded, while the opportunistic organisms in Proteobacteria were significantly depleted following FMT. Specific FMT-induced alterations in gut microbiota showed strong association with clinical benefits. This is the first description for the manipulation of gut microbiota as a potentially therapeutic alternative in sepsis. The patient benefits from the unconventional approach, which is due, at least in part, to FMT able to facilitate the re-establishment of the normal microbiota. Future studies with a larger number of patients are required to validate the efficacy of the procedure in sepsis and also toward broader clinical use.

Biography

Qiurong Li has completed her PhD in Herbin Medical University in 1997 and has accomplished postdoctoral study at Rheinisch-Westfalische Technische Hochschule Aachen in 2002. She is the director of Research Institute of General Surgery and a professor for General Surgery in Jinling Hospital Nanjing University. She has published more than 20 papers in reputed journals including Annals of Surgery, *American Journal Transplantation, Critical Care Medicine, and Journal of Pathology*, etc.

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