

19.7.1.1 Probiotics

Probiotics emerged in the end of nineteenth century and at the start of twentieth century and were consumed by centuries in fermented food aiming to restore beneficial microorganisms in the intestine in order to provide functional balance. Probiotics are specific bacteria that, when given at proper amounts, may confer benefits for the host, which may include prevention of gastrointestinal disorders, microbiota normalization, decreased bowel permeability, weight loss, immune function regulation, and treatment of irritable bowel syndrome, allergic diseases, and atopic dermatitis.

Recent works have shown that the administration of probiotics containing *Saccharomyces boulardii* and *Lactobacillus* spp. strains promotes the decreased incidence of CDI. *Lactobacillus salivarius* may prevent the growth of *L. monocytogenes*, and *Lactobacillus jensenii* may decrease infections caused by *Gardnerella vaginalis*, *Candida albicans*, and *E. coli*.

19.7.1.2 Prebiotics

The term prebiotic was defined in 1995 as nondigestible food components stimulating the selection of microbial populations desirable in the gut. The intake of food non-hydrolyzable in the upper gastrointestinal tract promotes the growth of certain bowel bacterial, particularly bifidobacteria and lactobacilli. Fibers are composed of poorly absorbed carbohydrates in the gastrointestinal tract, such as inulin and oligofructose. Fibers serve as a substrate for beneficial microorganisms to acidify the colon, favoring a favorable environment for a symbiotic relationship.

19.7.2 Stool Microbiota Transplant

A nonconventional alternative with an excellent potential to treat bacterial infections is stool microbiota transplant, scientifically reported for the first time in 1958. However, there are reports that Chinese medicine already prescribed stool medication for about 3000 years. Stool microbiota transplant has been used to treat patients with diarrhea related to pseudomembranous colitis caused by *C. difficile*. *Clostridium difficile* causes injuries in the colon by producing enterotoxin A, cytotoxin B, and binary toxin, causing diarrhea, fever, and leukocytosis. This bacterium has a high resistance and is often acquired by inpatients after being given antibiotics or immunosuppression periods. Studies performed had obtained results and concluded that the treatment with stool microbiota transplant for recurrent *C. difficile* colitis is more effective than oral vancomycin dosing.

In addition to treatment for bacterial infections, stool microbiota transplant is further used for a broad range of disorders, including Parkinson's disease, fibromyalgia, chronic fatigue syndrome, multiple sclerosis, obesity, insulin resistance, metabolic syndrome, and autism. The principle of stool microbiota