

SCM Seminar

Gut microbiome as an emerging target of TCM for the management of liver diseases

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Facilitator : Prof. Bian Zhaoxiang

Abstract

The gut microbiota has a large impact on liver health through microbial metabolites, microbial cell components, and other mechanisms. Short chain fatty acids (SCFAs), the major fermentation products of the gut microbiota, accounts for a substantial portion of calori intake and therefore contribute to the development or maintenance of obesity, and related complications such as non-alcoholic fatty liver diseases. SCFAs may also regulate intestinal absorption by stimulating GLP-2 production. Another type of abundant microbial metabolite, alcohol, has been implicated in the pathogenesis of non-alcoholic steatohepatitis. Significantly elevated representation of Escherichia spp. in NASH patients was observed. Escherichia belongs to Enterobacteriaceae, a bacterial family known for its high capacity in producing alcohol. Many studies suggest that Gram-negative bacterial cell wall components, lipopolysaccharide (LPS, endotoxin), triggers the expression of pro-inflammatory cytokines in the liver. We recently examined possible correlations among the gut microbiome composition, serum endotoxin concentrations and disease severities in NASH patients. The incidence of endotoxemia was higher in NASH patients, but did not correlate with the proportion of Gram-negative bacteria in the gut. This observation is consistent with the hypothesis that elevated gut permeability is responsible for endotoxemia in NASH. These studies suggest two potential targets for intervention with TCM: the composition of the microbiome and the gut permeability. While TCMs that stimulate cell growth, inhibit apoptosis or anti-inflammatory TCM may improve gut permeability, TCMs that effect on gut secretion, gut motility, gut transit or as prebiotics may alter the gut microbial composition, and consequently benefit patients with liver diseases.

**** All are welcome ****