

Potential risk associated with direct modulation of the gut flora in patients with heart failure

We read with great interest the article by Mayerhofer *et al.* about the design of GutHeart, which aims to explore the effects of the antibiotic rifaximin or probiotic yeast *Saccharomyces boulardii* targeting the gut microbiota, among patients with heart failure, and raises concerns regarding the potential risk.¹

The inclusion criteria for the enrolled participants were the presence of stable heart failure, which could be caused by myocardial infarction, diabetes, or hypertension. Whether differences in the reactions to such a strategy would arise due to the inherited characteristics of enrolled patients is a concern.

A recent study showed that antibiotics and discontinuation of probiotics could improve the symptom of brain foginess with a higher incidence of small intestinal bacterial overgrowth and D-lactic acidosis, which indicates that more metabolic indicators should be closely monitored in patients receiving the probiotic yeast *Saccharomyces boulardii* in addition to the listed markers.² Probiotics comprising *Saccharomyces boulardii* have been recommended for prevention of antibiotic-associated diarrhoea.³ In such a state, the patients' gastrointestinal mobility is often increased, which is contrary to the gastrointestinal dysmotility in patients with heart failure due to venous blood congestion. Moreover, the potential risk of colonization in the small bowel instead of the targeted colon cannot be completely excluded. A novel inhibitor of trimethylamine-generating enzyme would be another alternative for decreasing the negative effects of imbalanced gut flora.⁴

The authors intended to investigate the beneficial effects of the strategy of targeting gut microbiota via echocardiography. However, more quantitative and accurate data about the functional and structural changes of the heart could be obtained by cardiac magnetic resonance imaging, which might be more sensitive than echocardiography to detect the potential benefits of this novel strategy.

The research opens a new window for clinical physicians to implement the novel strategy for management of patients with heart failure by targeting the gut microbiota. When

using this strategy, more attention should be given to control the potential risk and explore the promising benefits.

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