

Small intestinal bacterial overgrowth in Fontan patients with protein-losing enteropathy: preliminary results.

Udink ten Cate F.E.A. (1), Nazzal R. (1), Hannes T. (1), Broekaert I. (2), Hünseler C. (2), Brockmeier K. (1), Sreeram N. (1)

Department of Pediatric Cardiology, Heart Center Cologne, University Hospital of Cologne, Cologne, Germany (1); Department of Pediatrics, Division of Gastroenterology, Children's Hospital of Cologne, Cologne, Germany (2)

Objective: Small intestinal bacterial overgrowth (SIBO) is characterized by excessive proliferation of colonic bacterial species in the small bowel. Symptoms related to SIBO are abdominal discomfort, intestinal inflammation, malnutrition, and growth failure, which are also common features of protein-losing enteropathy (PLE) in Fontan patients. The aim of this study was to test Fontan patients with PLE for the presence of SIBO.

Methods: Six Fontan patients (n = 5 chronic relapsing PLE, n = 1 newly diagnosed PLE) were scheduled for a glucose hydrogen breath test (GHBT) between June 2013 and December 2015 at our institution. SIBO was diagnosed if a fasting breath hydrogen concentration was ≥ 10 ppm or an increase in hydrogen levels of ≥ 12 ppm above the baseline value was measured after ingestion of glucose.

Results. One patient was not able to drink the glucose solution and was excluded from the study. The remaining 5 patients (median age 4.9 yrs, 80% male) successfully underwent a GHBT. Median hydrogen concentrations at baseline, and 1 hour, and 2 hours after glucose ingestion were 8 ppm (range 3 - 31 ppm), 4 ppm (range 1 - 27 ppm), and 6 ppm (range 5 - 10 ppm), respectively. Two patients (40%) were diagnosed with SIBO (baseline 16 ppm and 31 ppm). Clinical features and albumin levels improved after increasing the daily steroid dose in patients without SIBO. Interestingly, the patient with chronic PLE and SIBO did not respond to increasing steroid doses. Both patients with SIBO improved after treatment with rifaximin, a non-absorbable antibiotic, and oral probiotics.

Conclusions. SIBO may complicate the course of disease in chronic or newly diagnosed PLE. We identified an additional mechanism that might contribute to long-term outcome in these patients. Further studies are needed to elucidate the clinical role of SIBO in Fontan patients.