

Komposisi bakteri usus besar dan hubungannya dengan kejadian relaps sindrom nefrotik idiopatik anak = Bacterial composition of the colon and its relation with relapse idiopathic nephrotic syndrome in children

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Abstrak

ABSTRAK

Latar belakang: Sindrom nefrotik idiopatik (SNI) relaps anak terjadi karena ketidakseimbangan sel T-helper dan sel T-regulator. Perubahan komposisi bakteri usus besar dapat menyebabkan gangguan integritas usus, responsi imun, mungkin berperan terhadap relaps pada SNI.

Tujuan: Untuk mengetahui jenis dan komposisi bakteri usus besar pada SNI remisi dan relaps, hubungan jenis dan komposisi bakteri usus besar dengan IL-8 serum SNI relaps, gangguan integritas usus besar pada SNI relaps.

Metode: Penelitian prospektif di Departemen Ilmu Kesehatan Anak, FKUI- RSCM. Penelitian dua tahap yaitu SNI remisi yang diikuti sampai relaps. Diperiksa komposisi bakteri Enterococcus, Bacteroides, Escherichia, Clostridium, Lactobacillus, dan Bifidobacterium usus besar, alpha-1 antitrypsin dan calprotectin feses, IL-8 serum.

Hasil: Terdapat 49 subjek yang relaps berumur 2?12 tahun. Proporsi Enterococcus, Bacteroides, Escherichia, Clostridium lebih tinggi pada SNI relaps daripada SNI remisi. Proporsi Bifidobacterium lebih tinggi pada SNI remisi daripada SNI relaps. Terdapat peningkatan alpha-1 antitrypsin pada 51% SNI remisi dan 48% SNI relaps, serta peningkatan calprotectin pada 91.8% SNI remisi dan 95.9% SNI relaps. Median IL-8 serum lebih tinggi pada SNI relaps (13.2 pg/mL) dibandingkan SNI remisi (11.8 pg/mL).

Simpulan: Proporsi bakteri menguntungkan Bifidobacterium lebih tinggi pada SNI remisi dibandingkan SNI relaps. Proporsi bakteri patogen lebih tinggi pada SNI relaps dibandingkan dengan SNI remisi. Tidak terdapat hubungan antara jenis dan komposisi bakteri usus besar dengan peningkatan kadar IL-8 serum pada SNI relaps. Pada SNI relaps terdapat gangguan integritas usus besar.

<i>ABSTRACT</i>

Background: Relapses in idiopathic nephrotic syndrome (INS) may occur due to imbalance of T-helper and regulator T-cells. Alteration of colonic bacteria composition may cause a defect in colonic mucosal integrity and activate the immune system, leading to INS relapse. The aim of this study are to determine the composition of gut bacteria in INS remission and relapse, serum IL-8 in INS relapse, and defective bowel integrity INS relapse.

Methods: This prospective study on children with INS was conducted in two phases, starting in remission and followed up to relapse. Both during remission and during relapse, we collected stool samples from all subjects to examine intestinal bacteria composition comprising Enterococci, Bacteroides, Escherichiae,

Clostridia, Lactobacilli, and Bifidobacteria, fecal alpha-1 antitrypsin, and fecal calprotectin. We also collected peripheral blood to measure serum IL-8 levels during remission and relapse.

Results: The proportions of pathogenic bacteria Enterococcus, Bacteroides, Escherichia, and Clostridium were higher in INS relapse compared to remission. The proportion of the beneficial Bifidobacteria was statistically higher in INS remission compared to relapse. There was an increase of alpha-1 antitrypsin in 51% of INS in remission and 48% in relapse. Fecal calprotectin was increased in 91.8% of INS in remission and 95.9% in relapse. Median serum IL-8 in INS relapse (13.2 pg/mL) was higher than in remission (11.8 pg/mL).

Conclusions: The proportion of Bifidobacteria is higher in INS remission than in relapse, while the proportion of pathogenic bacteria is higher in relapse than in remission. There is no association between the composition of gut bacteria with serum IL-8 increase in relapsing INS. There is a defect in mucosal integrity in relapsing INS as demonstrated by elevated fecal alpha-1-antitrypsin and calprotectin.