Profil mikrobiota usus komensal pada pasien non- alcoholic fatty liver disease dengan berbagai derajat fibrosis hati = Gut microbiota profiles in Non Alcoholic fatty liver Disease (NAFLD) and its possible impact on disease progression evaluated with transient elastography

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Abstrak

Latar Belakang : Disbiosis mikrobiota usus dianggap berperan pada progresifitas NAFLD. Penelitian mengenai mikrobiota usus pada pasien NAFLD masih sedikit dan menunjukkan hasil yang berbeda.
Tujuan : Mengetahui profil mikrobiota usus pada pasien NAFLD dengan derajat fibrosis hati.
Metode : Penelitian menggunakan desain potong lintang, dengan menggunakan sampel pasien NAFLD di Rumah Sakit Cipto Mangunkusumo, periode waktu Maret – Juli 2018. Pemeriksaan sampel feses secara konsekutif dilakukan dengan menggunakan alat isolasi DNA (Tiangen) dan quantitative real-time polymerase chain reaction (Fast 7500) untuk menghitung jumlah mikrobiota dinyatakan dalam copy number DNA/gram feses (Bacteroides, Lactobacillus and Bifidobacteria). Sedangkan pemeriksaan fibrosis hati dengan menggunakan alat transient elastography (FibroScan® 502 Touch). Analisis statistik dilakukan menggunakan analisis bivariat dengan menggunakan uji chi-square.
Hasil : Dari 60 pasien NAFLD, didapatkan 35 pasien dengan fibrosis non signifikan dan 25 pasien dengan fibrosis signifikan. Kebanyakan pasien merupakan penderita diabetes melitus (85%), dislipidemia (58,3%), obesitas (58,3%), dan obesitas sentral (90%). Didapatkan jumlah Bacteroides (483.000 kopi unit DNA/gram feses) paling banyak dibandingkan dengan Lactobacillus (100.800 kopi unit DNA/gram feses) dan Bifidobacteria (12.110 kopi unit DNA/gram feses). Dari ketiga mikrobiota tersebut terdapat peningkatan bermakna proporsi Bacteroides pada kelompok fibrosis signifikan (81%) dibandingkan dengan fibrosis non signifikan (19%). Begitupula dengan Lactobacillus yang jumlahnya lebih banyak pada fibrosis signifikan. Sedangkan pada Bifidobacteria, proporsi pada fibrosis signifikan lebih rendah dibandingkan fibrosis non signifikan.
Simpulan : Terdapat perubahan komposisi mikrobiota usus pada pasien NAFLD. Proporsi Bacteroides juga meningkat pada kelompok fibrosis signifikan.
.....Background: Dysbiosis of the gut microbiota has been considered to have a role in NAFLD progression. However, there is still lack of studies regarding this phenomenon.
Aim of the study: To find the difference of gut microbiota profile in NAFLD patient based on the stages of liver fibrosis.
Patients and Methods: A cross sectional study was conducted at Dr. Cipto Mangunkusumo Hospital which is the largest tertiary refferal center hepatobiliary outpatient’s clinic. Human fecal samples from NAFLD patients who came to outpatient clinic were collected consecutively. The stool sample examination was performed using isolation DNA kit (Tiangen) and quantitative real-time polymerase chain reaction (Fast 7500) was used to measure total bacterial counts (Bacteroides, Lactobacillus and Bifidobacteria). Clinical and laboratory data, Food Frequency Questionare (FFQ) were also collected. The stage of fibrosis were

diagnosed based on transient elastography (FibroScan® 502 Touch). Statistical analysis including bivariate analysis were performed using SPSS version 20.
Results: Of 60 human fecal samples, there are 35 patients had non significant fibrosis and 25 patients had significant fibrosis and consist of 46.7% male and 53.3% female with the median age is 56 years old. Most patient have diabetes (85%) dyslipidemia (58.3%), obesity (58.3%), and central obesity (90%). The Bacteroides count (483000) was higher when compared to Lactobacillus (100800) and Bifidobacteria (12110). Of these three microbiota, the proportion of Bacteroides was higher in significant fibrosis group when compared to non significant fibrosis group. Patient with significant fibrosis was also has a higher proportion of Lactobacillus compared to non significant fibrosis group (7000 vs 2050). In contrast, the proportion of Bifidobacteria was lower in significant fibrosis group (22) when compared to non significant fibrosis group (95).
Conclusion: There is a dysbiosis of gut microbiota in NAFLD patients. Bacteroides as a gram-negative microbiota that produces LPS is significantly increased with fibrosis stage, that may play a role in NAFLD progression.