RISK FACTORS RELATED TO GASTROINTESTINAL BACTERIA IN HIV PATIENTS AT DR. SARDJITO REFERRAL HOSPITAL, YOGYAKARTA

Abstract

Background: Previous studies revealed that in MSM (men having sex with men) there is contradictory association between microbe richness and HIV serostatus. Other studies reported alterations in the composition of intestinal bacteria and a reduced diversity of microbiota which is considered as dysbiosis in HIV patients.
Aim of study: To know the relationship between gastrointestinal bacteria and CD4 count, stage of disease, sexual behaviour and the influence of ARV on intestinal bacteria composition in HIV seropositive patients.
Methods: Subjects were patients with HIV seropositive attending the Edelweis Polyclinic inpatient ward Anggrek 2 & Dahlia 3 RSUP DR Sardjito, who come through the period of July 2017 – January 2018. Inclusion criteria were patients with HIV positive, age ≥ 18 years, CD4 T cell count <300 cells/ul, agreed on being a research subject; exclusion criteria was pregnant women. Fresh stool samples were collected from the subjects and were examined for bacteria by microscopy, biochemistry and stool culture. Data concerning CD4 count, stage of HIV and ARV status were collected from patient's Medical Records. Questioner on patient's sexual behaviour were distributed to subjects. Collected data from patients were verified, edited and coded and further analyzed by using Statistical Program for Social Sciences (SPSS for Window) version 12. Relationship hypothesis was measured by bivariate analysis and Chi-square test with p-value of 0.05.
Results: 60 subjects that were analyzed for the relationships between the bacterial variable and the clinical status of subjects. Bacteria found in stool sample were grouped into *E. coli* and non-*E. coli*, and based on the number of bacterial species found in subjects. There is no significant relationship between the subjects' stage of disease and the bacteria found in stool sample when group into *E. coli* and non-*E. coli*. However, there is a significant relationship between subjects' stage of disease and the number of bacterial species found in their stool sample. Subjects in stage 3 & 4 show lower number of bacterial species compared to subjects with subjects' in stage 1 & 2 ($p<0.05$). There is no significant relationship between the subjects' CD4 cell count and their intestinal bacteria status whether it is grouped into *E. coli* and non-*E. coli* and the number of bacterial species found in the subjects' stool sample ($p>0.05$). There is no significant relationship between the subjects' sexual behavior and their intestinal bacteria status whether it is grouped into *E. coli* and non-*E. coli* and the number of bacterial species found in the subjects' stool sample ($p>0.05$). There is no significant relationship between the subjects' antiretroviral therapy status and their intestinal bacteria status whether it is grouped into *E. coli* and non-*E. coli* and the number of bacterial species found in the subjects' stool sample ($p>0.05$).

Conclusion: There is a significant relationship between stage of disease and the number of intestinal bacterial species. Later stage of HIV is associated with lower number of bacteria species.

Key words: intestinal bacteria, CD4 count, stage of HIV, sexual behaviour, ARV

FAKTOR RESIKO TERKAIT BAKTERI GASTROINTESTINAL PADA PASIEN HIV DI RSUP DR. SARDJITO, YOGYAKARTA

Intisari

Latar belakang: Penelitian-penelitian terdahulu mengungkapkan bahwa hubungan antara kekayaan mikroba dalam usus dengan status serologik HIV masih kontradiktif. Beberapa penelitian melaporkan bahwa pada pasien dengan HIV terdapat perubahan komposisi bakteri usus dan penurunan diversitas mikrobiota yang disebut disbiosis,
Tujuan penelitian: Untuk mengetahui adanya hubungan antara bakteri gastrointestinal pada pasien seropositif HIV dengan jumlah CD4, stadium penyakit, perilaku seksual dan pengaruh ARV terhadap komposisi bakteri gastrointestinal.
Metode: Subjek adalah pasien seropositif HIV yang terdaftar di poliklinik Edelweis dan ruangan rawat inap Anggrek 2 dan Dahlia 3 RSUP DR Sardjito dari periode Juli 2017-Januari 2018. Kriteria inklusi adalah pasien HIV-positif, usia ≥ 18 tahun, jumlah sel CD4 <300 sel/ul, bersedia menjadi subjek penelitian; kriteria eksklusi adalah perempuan hamil. Sampel feses dikumpulkan dari subjek dan diperiksa bakterinya menggunakan cara mikroskopi, biokimia dan kultur. Data CD4, stadium HIV dan status ARV dikumpulkan dari rekam medik pasien. Kuesioner tentang perilaku seksual dibagikan kepada pasien. Data yang terkumpul kemudian diverifikasi, diedit, dilakukan koding selanjutnya dianalisa menggunakan SPSS v 12. Hipotesis hubungan diukur dengan analisa bivariat dan chi-square dengan nilai p 0.05.
Hasil penelitian: 60 subjek dianalisis hubungan antara variabel bakteri dengan status klinik subjek. Untuk analisis hubungan, bakteri yang terdapat dalam feses dikelompok-kan dalam kelompok *E.coli* dan non-*E.coli*, dan berdasarkan jumlah spesies bakteri yang ditemukan di sampel feses dari subjek. Tidak terdapat hubungan yang bermakna antara stadium penyakit dan bakteri yang ditemukan di sampel feses dalam kelompok *E.coli* dan non-*E.coli*. Jika dikelompok-kan berdasarkan jumlah spesies bakteri yang ditemukan di sampel feses dari subjek, terdapat hubungan yang bermakna dengan stadium penyakit dari responden. Subjek stadium 3 & 4 memiliki kecenderungan ditemukan hanya 1 spesies bakteri di sampel feses. Tidak terdapat hubungan yang bermakna dari angka CD4 subjek dan status bakteri intestinal subjek, baik saat dikelompok-kan menjadi *E. coli* dan non-*E. coli,* maupun jumlah spesies bakteri yang ditemukan di sampel feses dari subjek ($p>0.05$). Tidak terdapat hubungan yang bermakna dari perilaku seksual dari subjek dan status bakteri intestinal subjek, baik saat dikelompok-kan menjadi *E. coli* dan non-*E. coli,* maupun jumlah spesies bakteri yang ditemukan di sampel feses dari subjek ($p>0.05$). Tidak terdapat hubungan yang bermakna dari status pemakaian terapi antiretroviral dan status bakteri intestinal subjek, baik saat dikelompok-kan menjadi *E. coli* dan non-*E. coli,* maupun jumlah spesies bakteri yang ditemukan di sampel feses dari subjek ($p>0.05$).

Kesimpulan: Ada hubungan bermakna antara stadium penyakit dengan jumlah spesies dalam usus. Stadium yang lebih tinggi lebih cenderung dikaitkan dengan jumlah bakteri usus yang lebih rendah.

Kata kunci: Bakteri usus, CD4, Stadium HIV, Perilaku seksual, ARV.