Efek Probiotik Lactobacillus casei terhadap Jumlah Koloni Candida albicans pada Rongga Mulut Anak Penderita Leukemia Limfositik Akut yang sedang Menjalani Kemoterapi = Effects of Probiotic Lactobacillus Casei on Candida albicans Colony Count in Oral Cavity of Children with Acute Lymphocytic Leukemia during Chemotherapy

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Abstrak

Latar Belakang: Candida albicans merupakan penyebab utama infeksi mikroba oportunistik pada pasien kanker. Pasien Leukemia Limfositik Akut (LLA) yang menjalani kemoterapi memiliki risiko tinggi terkena kandidiasis karena imunosupresi dan melemahnya barier epitel. Penggunaan obat antifungal sistemik dibatasi oleh risiko efek samping yang lebih besar dan berkembangnya strain yang resisten, namun obat antifungal topikal yang tersedia saat ini masih dianggap kurang efektif untuk pasien imunosupresi termasuk pasien kemoterapi. Beberapa penelitian memberikan bukti kelayakan probiotik Lactobacillus casei untuk bertindak sebagai antifungal alternatif di berbagai sistem organ manusia. Tujuan: Menganalisis pengaruh probiotik terhadap jumlah C. albicans di rongga mulut anak penderita LLA selama kemoterapi. Metode: Sampel saliva diambil dari 11 anak penderita LLA selama kemoterapi. Subyek diinstruksikan untuk berkumur dengan probiotik yang mengandung L. casei selama 60 detik, dua kali sehari, selama 14 hari. Sampel saliva tidak terstimulasi dikumpulkan secara berurutan pada 3 titik waktu (awal, 7 hari, dan 14 hari). Jumlah C. albicans dihitung dengan qPCR. Hasil: Perbedaan signifikan secara statistik ditemukan antara jumlah C. albicans pada awal (494.363+180.737 CFU/ml), setelah 7 hari (276.654+69.903 CFU/ml), dan setelah 14 hari (229.286+50.883 CFU/ml) berkumur dengan probiotik. Jumlah yang lebih rendah secara signifikan ditemukan setelah 7 dan 14 hari berkumur dengan probiotik ($p<0.05$). Kesimpulan: Probiotik L. casei memiliki efek menurunkan jumlah C. albicans di rongga mulut anak leukemia selama kemoterapi.

.....Background: Candida albicans is the leading cause of opportunistic microbial infections in patients with cancer. Acute Lymphocytic Leukemia (ALL) patients undergoing chemotherapy have high risk of candidiasis due to immunosuppression and weakened epithelial barriers. Systemic antifungal drugs' usage is limited by the greater risk of side effects and developing resistant strains, yet currently available topical antifungal drugs are still considered ineffective for immunosuppressed patients including chemotherapy patients. Several studies provide evidence for the feasibility of probiotic Lactobacillus casei to act as alternative antifungal in various human organ systems. Objectives: To analyze the effects of probiotic L. casei on the number of C. albicans in oral cavity of children with ALL during chemotherapy.Methods: Saliva samples were taken from 11 children with ALL during chemotherapy. Subjects were instructed to do mouth rinse with probiotics contained Lactobacillus casei for 60s, twice daily, over the course of 14 days. Unstimulated saliva samples were collected sequentially at 3 time points (baseline, 7 days, and 14 days). The number of C. albicans was quantified by qPCR. Results: Statistically significant differences were found between the number of C. albicans at baseline (494.363+180.737 CFU/ml), after 7 days (276.653+69.903 CFU/ml), and after 14 days (229.286+50.883 CFU/ml) mouth rinsing with probiotic L. casei. Significant lower number was found both after 7 and 14 days rinsing with probiotics ($p<0.05$). Conclusion: Probiotic L.casei has reducing effects on the number of C. albicans in oral cavity of children with ALL during

chemotherapy.