

**PENGARUH PEMBERIAN KOMBINASI PROBIOTIK
DAN KALSIMUM KARBONAT TERHADAP
JUMLAH LIMFOSIT DAN JUMLAH LEUKOSIT
POLIMORFONUKLEAR (PMN) PADA PASIEN
PENYAKIT GINJAL KRONIK STADIUM AKHIR**
Studi di Unit Hemodialisis RS Rumah Sehat Terpadu Dompot Dhuafa Bogor

***THE EFFECT OF COMBINED PROBIOTICS AND CALCIUM
CARBONATE SUPPLEMENTATION ON LYMPHOCYTE AND
POLYMORPHONUCLEAR LEUKOCYTE (PMN) COUNT IN
END-STAGE RENAL DISEASE PATIENTS
Study on Hemodialysis Unit at Rumah Sehat Terpadu
Dompot Dhuafa Hospital in Bogor***



Tesis
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**PENGARUH PEMBERIAN KOMBINASI PROBIOTIK DAN KALSIMUM
KARBONAT TERHADAP JUMLAH LIMFOSIT DAN JUMLAH
LEUKOSIT POLIMORFONUKLEAR (PMN) PADA PASIEN PENYAKIT
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ABSTRAK

Latar Belakang: Kondisi malnutrisi pada pasien PGK stadium akhir menyebabkan inflamasi dan gangguan sistem imun karena adanya neutropenia dan limfositopenia. Probiotik mampu menjaga keseimbangan sistem imun melalui peningkatan kapasitas fagosit. Kalsium karbonat merupakan fosfat *binder* yang digunakan sebagai intervensi standard pada pasien PGK stadium akhir, serta kombinasinya dengan probiotik mampu meningkatkan kolonisasi dalam saluran cerna. Kombinasi probiotik dan kalsium karbonat mampu meningkatkan jumlah limfosit dan jumlah leukosit polimorfonuklear (PMN).

Tujuan: Menganalisis pengaruh pemberian kombinasi probiotik dan kalsium karbonat terhadap peningkatan jumlah limfosit dan jumlah leukosit polimorfonuklear (PMN) pada pasien PGK stadium akhir di RS Rumah Sehat Terpadu Dompot Dhuafa Bogor.

Metode: Penelitian eksperimen dengan rancangan *randomized pre-post test control group design*. Dua puluh empat pasien PGK stadium akhir dibagi menjadi dua kelompok, kelompok perlakuan diberikan kombinasi probiotik dan kalsium karbonat, serta kelompok kontrol diberikan kalsium karbonat selama 21 hari. Analisis statistik menggunakan uji *independent t-test*, *Mann-Whitney*, *paired-t test*, *Pearson*, dan uji *generalized linier model (GLM) repeated measure*.

Hasil: Terdapat peningkatan jumlah limfosit secara signifikan ($p=0,03$) dan peningkatan jumlah leukosit polimorfonuklear (PMN) namun tidak signifikan ($p=0,81$) setelah pemberian kombinasi probiotik dan kalsium karbonat.

Simpulan: Kombinasi probiotik dan kalsium karbonat mampu meningkatkan jumlah limfosit dan jumlah leukosit polimorfonuklear (PMN).

Kata kunci: probiotik, kalsium karbonat, jumlah limfosit, jumlah leukosit polimorfonuklear (PMN), PGK stadium akhir

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ABSTRACT

Background: Malnutrition in End Stage Renal Disease (ESRD) patients causes inflammation and immune system disorders due to the presence of neutropenia and lymphocytopenia. Probiotics are able to balance the immune system by increasing phagocytic capacity. Calcium carbonate is a phosphate binder used for standard intervention in patients with ESRD, while combination with probiotic may increase colonization of probiotic in the intestine. The combination of probiotics and calcium carbonate may increase lymphocytes and polymorphonuclear leukocytes (PMNLs) count.

Objective: To analyze the effect of combination probiotics and calcium carbonate on elevated lymphocyte and PMNLs count in patients with chronic kidney disease on hemodialysis in RS Rumah Sehat Terpadu Dompot Dhuafa Bogor.

Methods: A true experiment with randomized pre-post test control group design. Twenty four of end-stage renal disease patients divided into two groups. The treatment group was given a combination of probiotics and calcium carbonate. The control group was given calcium carbonate for 21 days. Statistical analysis was independent t-test, Mann-Whitney, paired t-test, Pearson, and generalized linier model repeated measure.

Results: There was a significant increase in the lymphocytes count ($p=0.03$) and PMNLs count but not significant ($p=0.81$) after combination of probiotics and calcium

Conclusion: Combined probiotics and calcium carbonate may increase lymphocytes count, but increases in PMNLs count are not significant.

Keywords: probiotics, calcium carbonate, lymphocyte count, PMNLs, ESRD

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