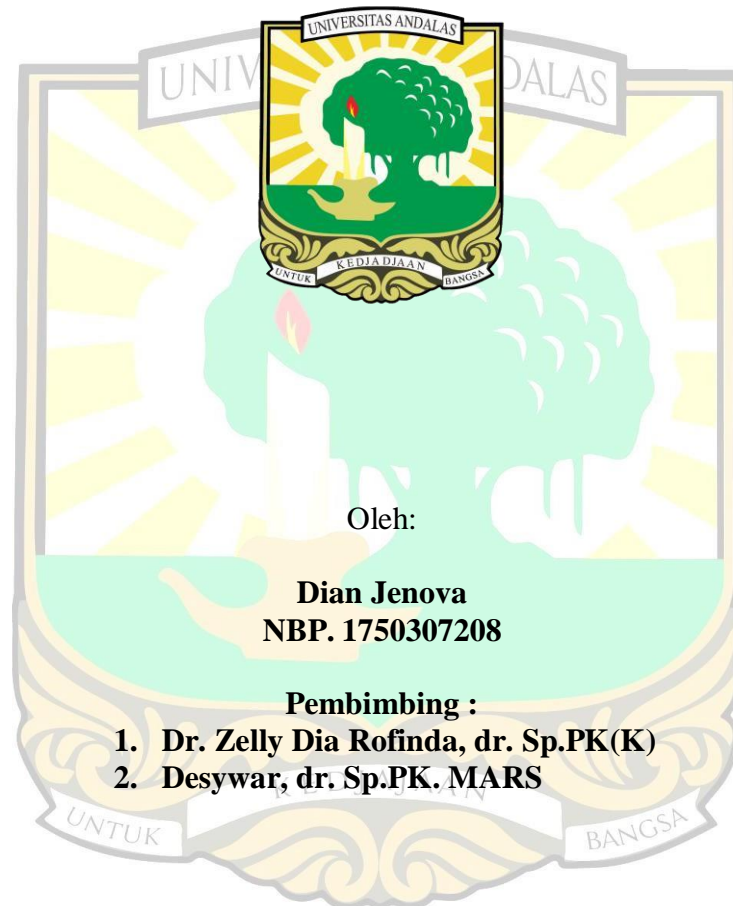


Tesis

**PERBEDAAN HITUNG SEL LIMFOSIT T CD4+ PADA
PASIEN TRANSFUSI BERULANG BERDASARKAN
KEJADIAN ALLOIMUNISASI ERITROSIT**



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PERBEDAAN HITUNG SEL LIMFOSIT T CD4+ PADA PASIEN TRANSFUSI BERULANG BERDASARKAN KEJADIAN ALLOIMUNISASI ERITROSIT

ABSTRAK

Latar Belakang: Transfusi eritrosit merupakan salah satu komponen terapi penting pasien penyakit hematologi meliputi anemia aplasia, *myelodysplastic syndrome*, penyakit mieloproliferatif kronik, keganasan hematologi, serta hemoglobinopati (talasemia mayor dan penyakit sel sabit). Risiko paling umum transfusi eritrosit ber-ulang adalah terjadinya proses alloimunisasi yang dapat menyebabkan kesulitan uji silang serasi, kesulitan dan keterlambatan penyediaan darah yang kompatibel, ter-jadinya reaksi transfusi hemolitik, peningkatan kebutuhan transfusi serta peningka-tan morbiditas dan mortalitas. Perkembangan alloantibodi setelah terpapar antigen eritrosit non-ABO *non-self* merupakan suatu proses kompleks yang dipenga-ruhi oleh berbagai faktor dan melibatkan interaksi antara *antigen presenting cells* (APC), sel limfosit T CD4+, dan sel limfosit B. Tujuan penelitian ini adalah menge-tahui perbedaan hitung sel limfosit T CD4+ pada pasien transfusi berulang berdasarkan kejadian alloimunisasi eritrosit.

Metode: Penelitian analitik dengan rancangan potong lintang dilakukan terhadap 16 pasien penyakit hematologi usia ≥ 18 tahun rawatan bagian Ilmu Penyakit Dalam RSUP Dr. M. Djamil Padang dengan riwayat transfusi *packed red cell* (PRC) minimal 3 unit pada Juli 2021- Juni 2022. Alloantibodi positif ditentukan dari hasil *indirect Coomb's test* positif. Hitung sel limfosit T CD4+ dilakukan dengan metode *immunoassay with fluorescence imaging optic*. Data dianalisis dengan uji parametrik t tidak berpasangan, bermakna secara statistik jika nilai $p < 0,05$.

Hasil: Rerata umur subjek penelitian 44,3 tahun, rentang 23-69 tahun. Subjek penelitian sama banyak laki-laki dan perempuan, masing-masing 8 orang (50%). Rerata hitung sel limfosit T CD4+ seluruh subjek penelitian didapatkan 975 (634) sel/ μ L dengan rentang hitung sel 84-2403 sel/ μ L. Rerata hitung sel limfosit T CD4+ kelompok alloantibodi positif didapatkan 474 (397) sel/ μ L. Rerata hitung sel limfosit T CD4+ kelompok alloantibodi negatif didapatkan 1275 (560) sel/ μ L. Uji statistik menunjukkan perbedaan hitung sel limfosit T CD4+ yang bermakna antara 2 kelompok ($p = 0,009$).

Simpulan: Terdapat perbedaan bermakna hitung sel limfosit T CD4+ pasien penyakit hematologi yang mendapat transfusi berulang berdasarkan kejadian alloimunisasi eritrosit. Hitung sel limfosit T CD4+ pasien dengan alloantibodi positif lebih rendah dibanding kelompok alloantibodi negatif.

Kata Kunci: transfusi berulang, alloimunisasi eritrosit, alloantibodi, sel limfosit T CD4+.

DIFFERENCES OF CD4+ T-LYMPHOCYTE COUNT IN REPEATEDLY TRANSFUSION PATIENTS BASED ON RED BLOOD CELLS ALLOIMMUNIZATION

ABSTRACT

Background: Red blood cell transfusion is an essential therapy in hematological disease patients, including aplastic anemia, myelodysplastic syndrome, chronic myeloproliferative disease, hematological malignancies, and hemoglobinopathies (thalassemia major and sickle cell disease). The most common risk of repeatedly red blood cell transfusion is red blood cell alloimmunization. That can cause difficulty in crossmatching, difficulty and delay in supplying compatible blood, hemolytic transfusion reactions, increased transfusion requirements, higher morbidity, and mortality. Various factors and interactions between antigen presenting cells (APCs), CD4+ T lymphocytes, and B lymphocytes influenced the development of alloantibodies after exposure to non-self non-ABO red blood cell antigens in a complex way. This study aimed to determine differences in the CD4+ T lymphocytes count in patients with repeated transfusion based on red blood cell alloimmunization.

Methods: This study was analytic with a cross-sectional design conducted on 16 hematological disease patients aged ≥ 18 years with a history of red blood cell transfusion of at least three units in July 2021-June 2022. Positive alloantibodies referred to a positive indirect Coomb's test. Immunoassay with fluorescence imaging optic method performed to count CD4+ T. Data were analyzed using unpaired parametric t-test, significant if $p < 0.05$.

Results: Mean age was 44.3 years, and the range was 23-69 years. The number of subjects in this study is equal between men and women, with eight people in each gender (50%). The mean CD4+ T lymphocyte cell count in all subjects was 975 (634) cells/ μ L with a range of 84-2403 cells/ μ L. The mean CD4+ T lymphocyte cell count in the positive alloantibody group was 474 (397) cells/ μ L. The mean CD4+ T lymphocyte cell count in the negative alloantibody group was 1275 (560) cells/ μ L. The statistical test showed a significant difference in CD4+ T lymphocyte cell count between the two groups ($p = 0.009$).

Conclusion: CD4+ T lymphocyte cell count of repeated transfusions in hematological disease patients had a significant difference based on red blood cell alloimmunization. Patients with positive alloantibody have CD4+ T lymphocyte cells count lower than the negative alloantibody group.

Keywords: repeated transfusion, red blood cell alloimmunization, alloantibody, CD4+ T lymphocytes.