

PERBEDAAN AKTIVITAS *ALANINE AMINOTRANSFERASE* (ALT) DALAM
SAMPEL *SERUM SEPARATOR TUBE* YANG DIDIAMKAN SELAMA 5 DAN
30 MENIT SEBELUM DISENTRIFUGASI

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ABSTRAK

Latar Belakang : Fase praanalitik merupakan sumber kesalahan terbesar dalam pemeriksaan laboratorium, mencapai 50–75% dari total kesalahan. Salah satunya yaitu waktu tunggu pembekuan sampel sebelum sentrifugasi. Sampel tabung SST sering langsung disentrifugasi tanpa menunggu pembekuan sempurna, yang berpotensi memengaruhi aktivitas ALT sebagai penanda kerusakan hati.

Tujuan : Mengetahui perbedaan aktivitas *Alanine Aminotransferase* (ALT) dalam sampel *Serum Separator Tube* yang didiamkan selama 5 dan 30 menit sebelum disentrifugasi.

Metode : Penelitian ini adalah quasi-eksperimental dengan *posttest only control group design*. Subjek penelitian mahasiswa Semester 2 Jurusan Teknologi Laboratorium Medis Poltekkes Kemenkes Yogyakarta sebanyak 40 orang. Aktivitas ALT diukur menggunakan metode UV IFCC. Data dianalisis statistik sesuai distribusi data.

Hasil : Rata-rata aktivitas ALT yang didiamkan 5 menit 14,54 U/L, rata-rata yang didiamkan selama 30 menit 13,82 U/L. Terdapat kenaikan aktivitas ALT yang didiamkan 5 menit dibanding yang didiamkan 30 menit sebesar 0,72 U/L. Uji wilxocon didapatkan nilai p-value < 0,05, menunjukkan adanya perbedaan signifikan namun tidak bermakna secara klinis karena belum melebihi batas *Total Error Allowable* (TEa) ALT yang ditetapkan *Clinical Laboratory Improvement Amendments* (CLIA) yaitu 15%.

Kesimpulan : Ada perbedaan signifikan aktivitas *Alanine Aminotransferase* (ALT) dalam sampel *Serum Separator Tube* yang didiamkan 5 dan 30 menit sebelum disentrifus tetapi tidak bermakna klinis.

Kata Kunci : *Serum Separator Tube*, *Alanine Aminotransferase* (ALT), Waktu pendiaman sampel

DIFFERENCES OF ALANINE AMINOTRANSFERASE (ALT) ACTIVITY IN SERUM SEPARATOR TUBE SAMPLES LEFT TO STAND FOR 5 AND 30 MINUTES BEFORE CENTRIFUGATION

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ABSTRACT

Background: The preanalytical phase is the leading source of errors in laboratory testing, accounting for 50–75% of all errors. One such error is the waiting time for samples to clot before centrifugation. SST tubes are often centrifuged immediately without waiting for complete clotting, which can potentially affect ALT activity as a marker of liver damage.

Objective: To determine differences in *Alanine Aminotransferase* (ALT) activity in *Serum Separator Tube* samples allowed to stand for 5 and 30 minutes before centrifugation.

Methods: This study is a quasi-experimental study with a posttest-only control group design. The study subjects consisted of 40 second-semester students in the Medical Laboratory Technology Department at the Yogyakarta Public Health Polytechnic. ALT activity was measured using a kinetic UV IFCC. The data were statistically analyzed according to their distribution.

Results: The mean ALT activity of samples allowed to stand for 5 minutes was 14.54 U/L, while the mean ALT activity of samples allowed to stand for 30 minutes was 13.82 U/L. An increase of 0.72 U/L was observed in ALT activity when samples were allowed to stand for 5 minutes compared to those allowed to stand for 30 minutes. The Wilcoxon test yielded a p-value of less than 0.05, indicating a statistically significant difference; however, this difference was not clinically significant, as it did not exceed the Total Allowable Error (TEa) limit for ALT of 15% established by the Clinical Laboratory Improvement Amendments (CLIA).

Conclusion: There is a significant difference in *Alanine Aminotransferase* (ALT) activity in *Serum Separator Tube* samples left to stand for 5 and 30 minutes before centrifugation, but this difference is not clinically significant.

Keywords: *Serum Separator Tube*, *Alanine Aminotransferase* (ALT), Sample standing time