

DIFFERENCES IN Alanine aminotransferase (ALT) ENZYME ACTIVITY IN BLOOD SAMPLE TRANSFER TREATMENT WITH AND WITHOUT REMOVING THE SYRINGE NEEDLE

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ABSTRACT

Background: Alanine aminotransferase (ALT) enzyme activity testing is a crucial parameter in assessing liver function. Laboratory test results are significantly influenced by the pre-analytical phase, particularly the handling and transfer of blood samples. Improper sample transfer techniques, such as transferring blood from a syringe to a tube without removing the needle, can potentially cause hemolysis, which can affect the results of Alanine aminotransferase tests.

Objective: This study aims to determine the differences and average values in the treatment of transferring blood samples with and without removing the syringe needle for examining Alanine aminotransferase levels.

Method: The research method used was descriptive observational analytic with a cross-sectional design. The sample used was 30 samples obtained from students of the Medical Laboratory Technology Study Program, Diploma III Program, Semester II, Medical Laboratory Technology Department, Poltekkes Kemenkes Yogyakarta. Data from the ALT enzyme activity examination were analyzed descriptively and statistically using SPSS with tabular presentation.

Result: Descriptive analysis showed that the average Alanine aminotransferase (ALT) enzyme activity in blood sample transfer with the syringe needle removed was 9.2 U/L, while without removing the syringe needle it was 6.6 U/L. The results of the parametric test using the Independent t-Test obtained Asym Sig. (2-tailed) of $p = 0.000$ (<0.05) indicating a difference in the treatment of blood sample transfer with and without removing the syringe needle on the examination of Alanine aminotransferase enzyme activity.

Conclusion: There was a significant difference in Alanine aminotransferase enzyme activity between blood sample transfer with and without removing the syringe needle, where the average ALT value in the treatment with removing the syringe needle was higher than without removing the syringe needle.

Keywords: Blood Sample Transfer, Hemolysis, Alanine aminotransferase (ALT).

PERBEDAAN AKTIVITAS ENZIM *Alanine Aminotransferase* (ALT) PADA PERLAKUAN PEMINDAHAN SAMPEL DARAH DENGAN DAN TANPA MELEPAS JARUM SPUIT

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ABSTRAK

Latar Belakang: Pemeriksaan aktivitas enzim *Alanine aminotransferase* (ALT) merupakan salah satu parameter penting dalam menilai fungsi hati. Hasil pemeriksaan laboratorium sangat dipengaruhi oleh tahap pre-analitik, terutama pada penanganan dan pemindahan sampel darah. Teknik pemindahan sampel yang tidak tepat, seperti pemindahan sampel darah dari spuit ke tabung yang dilakukan tanpa melepas jarum dapat berpotensi menyebabkan hemolisis yang dapat mempengaruhi hasil salah satunya yaitu pemeriksaan *Alanine aminotransferase*.

Tujuan: Penelitian ini bertujuan Mengetahui perbedaan dan nilai rerata pada perlakuan pemindahan sampel darah dengan dan tanpa melepas jarum spuit terhadap pemeriksaan kadar *Alanine aminotransferase*.

Metode: Jenis metode penelitian yang digunakan adalah deskriptif observasional analitik dengan desain *cros sectional*. Sampel yang digunakan sebanyak 30 sampel yang diperoleh dari mahasiswa Program Studi Teknologi Laboratorium Medis Program Diploma III Semester II Jurusan Teknologi Laboratorium Medis Poltekkes Kemenkes Yogyakarta. Data hasil pemeriksaan aktivitas enzim ALT dianalisis secara deskriptif dan analisis statistik dengan SPSS dengan bentuk penyajian tabel.

Hasil Penelitian: Analisis deskriptif menunjukkan bahwa rata-rata aktivitas enzim *Alanine aminotransferase* (ALT) pada pemindahan sampel darah dengan melepas jarum spuit sebesar 9,2 U/L, sedangkan tanpa melepas jarum spuit sebesar 6,6 U/L. Hasil uji parametrik dengan menggunakan uji *Independent t-Test* diperoleh *Asym Sig. (2-tailed)* sebesar $p = 0,000 (< 0,05)$ menunjukkan adanya perbedaan perlakuan pemindahan sampel darah dengan dan tanpa melepas jarum spuit terhadap pemeriksaan aktivitas enzim *Alanine aminotransferase*.

Kesimpulan: Terdapat perbedaan yang bermakna pada aktivitas enzim *Alanine aminotransferase* antara pemindahan sampel darah dengan dan tanpa melepas jarum spuit, di mana rata-rata nilai ALT pada perlakuan dengan melepas jarum spuit lebih tinggi dibandingkan tanpa melepas jarum spuit.

Kata Kunci: Pemindahan Sampel Darah, Hemolisis, *Alanine aminotransferase* (ALT).