

DIFFERENCES IN ALKALINE PHOSPHATASE ENZYME ACTIVITY DURING BLOOD SAMPLE TRANSFER WITH AND WITHOUT REMOVING THE SYRINGE NEEDLE

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ABSTRACT

Background : Transferring blood samples from a syringe to a vacutainer tube without removing the syringe needle has the potential to cause hemolysis. This occurs because the blood flows through the narrow needle opening under high pressure, which can damage the erythrocyte membranes. The resulting hemolysis can affect the results of clinical chemistry tests, including alkaline phosphatase.

Research Objective : To determine the difference in alkaline phosphatase enzyme activity when transferring blood samples with and without removing the syringe needle, and to determine whether the method of blood sample transfer used is permissible or not..

Research Methods : The type of research used is analytical observational design with a cross-sectional approach. The samples consisted of venous blood from 30 respondents, which were divided into two treatments: transfer with removing the syringe needle and without removing the syringe needle. Data were analyzed using a Paired Sample T-Test with SPSS 25.0 for Windows.

Research Results : Descriptive analysis revealed a difference in the mean alkaline phosphatase enzyme activity values between the two treatments of 38.41 U/L. The alkaline phosphatase enzyme activity values in blood samples transferred without removing the syringe needle decreased by an average of 34.47%. Statistical analysis using the Paired Sample T-Test obtained $p(0,000) < 0,05$, indicating a difference in alkaline phosphatase enzyme activity between samples transferred with and without removing the syringe needle.

Conclusion : There is a significant difference in alkaline phosphatase enzyme activity between blood sample transfer with and without removing the syringe needle, therefore, the method of transferring without removing the syringe needle is not permitted in alkaline phosphatase enzyme activity testing.

Keywords : *Blood sample transfer, Alkaline Phosphatase, Hemolysis.*

PERBEDAAN AKTIVITAS ENZIM ALKALI FOSFATASE PADA PEMINDAHAN SAMPEL DARAH DENGAN DAN TANPA MELEPAS JARUM SPUIT

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ABSTRAK

Latar Belakang : Pemindahan sampel darah dari *syringe* ke tabung *vacutainer* tanpa melepas jarum spuit berpotensi menyebabkan hemolisis. Hal ini terjadi karena darah keluar melalui lubang jarum yang sempit dengan tekanan tinggi sehingga dapat merusak membran eritrosit. Hemolisis yang terjadi dapat memengaruhi hasil pemeriksaan kimia klinik, termasuk enzim alkali fosfatase.

Tujuan Penelitian : Mengetahui perbedaan aktivitas enzim alkali fosfatase pada pemindahan sampel darah dengan dan tanpa melepas jarum spuit serta mengetahui diperbolehkan atau tidak metode pemindahan sampel darah yang digunakan.

Metode Penelitian : Jenis penelitian yang digunakan adalah observasional analitik dengan desain *cross sectional*. Sampel berupa darah vena dari responden sejumlah 30 responden yang kemudian dibagi menjadi dua perlakuan, yaitu dengan melepas jarum spuit dan tanpa melepas jarum spuit. Data dianalisis menggunakan *uji Paired Sampel T-Test* dengan SPSS 25.0 for Windows.

Hasil Penelitian : Analisis deskriptif menunjukkan adanya perbedaan rata – rata nilai aktivitas enzim alkali fosfatase antara kedua perlakuan sebesar 38,41 U/L. Nilai aktivitas enzim alkali fosfatase pada pemindahan sampel darah tanpa melepas jarum spuit mengalami penurunan rata – rata sebesar 34,47 %. Hasil uji statistik *Paired Sampel T-Test* diperoleh $p (0,000) < 0,05$ menunjukkan adanya perbedaan aktivitas enzim alkali fosfatase antara pemindahan sampel dengan dan tanpa melepas jarum spuit.

Kesimpulan : Ada perbedaan antara nilai aktivitas enzim alkali fosfatase pada pemindahan sampel darah dengan melepas jarum spuit dan tanpa melepas jarum spuit serta tidak diperbolehkan metode pemindahan tanpa melepas jarum spuit dalam pemeriksaan aktivitas enzim alkali fosfatase.

Kata Kunci : *Pemindahan sampel darah, Enzim Alkali Fosfatase, Hemolisis*