

ABSTRACT

Background: Potassium is an important macromineral in the human body, so small errors in sample processing can affect the results. Sample processing for potassium examination uses lithium heparin tubes. Lithium heparin tubes have a disadvantage if they are not immediately centrifuged, which causes a reaction of Na^+/K^+ ATPase activity which results in the results of potassium level examination.

Objective: This study aims to determine the difference in blood potassium levels in lithium heparin tubes that are immediately centrifuged and delayed for 3 hours, and also aims to determine the mean and difference of potassium levels that are immediately centrifuged and delayed centrifugation for 3 hours.

Methods: This study used the Pre-Experimental Design research type. The research sample came from 30 respondents who were divided into 2 groups based on the length of time delayed centrifugation. Group 1 samples were immediately centrifuged and group 2 samples were delayed centrifugation for 3 hours. Data were analyzed descriptively, statistically and based on Clinical Laboratory Improvement Amendments (CLIA) rules.

Results: Descriptive analysis shows the average results of potassium levels in lithium heparin tubes that are immediately centrifuged at 3.51 mmol / L and the average results of potassium levels in lithium heparin tubes that are delayed 3 hours at 4.56 mmol / L with a difference of 1.05 mmol / L or 29.91%. Statistical analysis obtained the results of Asymp. Sig (0.000 <0.05) which means there is a significant difference in potassium levels that are delayed centrifugation for 3 hours. CLIA analysis obtained the result (1.05 > 0.3) mmol/L which means it is unacceptable because the total error limit exceeds the tolerance value.

Conclusion: There was a significant difference between blood potassium levels in lithium heparin tubes centrifuged immediately and delayed for 3 hours.

Keywords: Delay, Potassium, Lithium heparin

ABSTRAK

Latar Belakang: Kalium merupakan makromineral penting dalam tubuh manusia sehingga kesalahan sedikit saja dalam pengolahan sampel dapat mempengaruhi hasil. Pengolahan sampel untuk pemeriksaan kalium menggunakan tabung lithium heparin. Tabung lithium heparin memiliki kelemahan jika tidak segera disentrifugasi yaitu menimbulkan reaksi aktivitas $\text{Na}^+/\text{K}^+\text{ATPase}$ yang berakibat pada hasil pemeriksaan kadar kalium.

Tujuan Penelitian: Penelitian ini bertujuan untuk mengetahui perbedaan kadar kalium darah pada tabung lithium heparin yang segera disentrifugasi dan ditunda selama 3 jam, selain itu juga bertujuan untuk mengetahui rerata dan selisih dari kadar kalium yang segera disentrifugasi dan ditunda sentrifugasinya selama 3 jam.

Metode Penelitian: Jenis penelitian ini menggunakan penelitian *pre-eksperimental*. Sampel penelitian berasal dari 30 responden yang diperiksa dibagi menjadi 2 kelompok berdasarkan lama waktu penundaan sentrifugasi. Sampel kelompok 1 langsung disentrifugasi dan sampel kelompok 2 ditunda sentrifugasi selama 3 jam. Data dianalisis secara deskriptif, statistik dan berdasarkan aturan *Clinical Laboratory Improvement Amendments* (CLIA).

Hasil Penelitian: Analisis Deskriptif menunjukkan rerata hasil kadar kalium pada tabung lithium heparin yang segera disentrifugasi sebesar 3,51 mmol/L dan rerata hasil kadar kalium pada tabung lithium heparin yang ditunda 3 jam sebesar 4,56 mmol/L dengan selisih sebesar 1,05 mmol/L atau 29,91%. Analisis statistik didapatkan hasil Asymp. Sig ($0,000 < 0,05$) yang artinya terdapat perbedaan signifikan pada kadar kalium yang ditunda sentrifugasi selama 3 jam. Analisis CLIA didapatkan hasil ($1,05 > 0,3$) mmol/L yang artinya tidak dapat diterima karena batas kesalahan totalnya melebihi nilai toleransi.

Kesimpulan: Terdapat perbedaan yang signifikan antara kadar kalium darah pada tabung lithium heparin yang segera disentrifugasi dan ditunda selama 3 jam.

Kata Kunci: Penundaan, Kalium, Lithium heparin