

ABSTRACT

Background: Tourniquet placement is an important procedure in venous blood sampling. Errors in its use technique, especially in terms of tourniquet release time, can affect the results of laboratory tests, one of which is serum sodium levels.

Objective: To determine the difference in serum sodium levels based on two tourniquet application techniques, i.e. tourniquet removal as soon as the blood is accessible and not removed until the blood volume reaches 3 cc.

Methods: This study used an analytic observational design with a cross sectional approach. A sample of 40 second semester students of D3 Medical Laboratory Technology Study Program of Poltekkes Kemenkes Yogyakarta was taken by consecutive sampling. Examination of serum sodium levels was carried out using the colorimetric method with a Mindray BA-88A photometer. Data were analyzed using Shapiro-Wilk test for normality test and continued with Paired Sample T-Test.

Results: The results showed that serum sodium levels were higher in tourniquet use techniques that were not immediately removed with a mean difference of 1.3 mmol/L (percentage difference 0.87%). The Paired Sample T-Test test results showed a significance value of 0.017 ($p < 0.05$), which means there is a statistically difference between the two tourniquet usage technique variations.

Conclusion: There is a difference between the two tourniquet application techniques on serum sodium levels.

Keywords: Tourniquet, serum sodium, phlebotomy technique, pre-analytic, colorimetric.

ABSTRAK

Latar Belakang: Pemasangan *tourniquet* merupakan prosedur penting dalam pengambilan sampel darah vena. Kesalahan dalam teknik penggunaannya, terutama dalam hal waktu pelepasan *tourniquet*, dapat memengaruhi hasil pemeriksaan laboratorium, salah satunya kadar natrium serum.

Tujuan: Mengetahui perbedaan kadar natrium serum berdasarkan dua teknik penggunaan *tourniquet*, yaitu dilepas segera setelah darah dapat diakses dan tidak dilepas hingga volume darah mencapai 3 cc.

Metode: Penelitian ini menggunakan desain observasional analitik dengan pendekatan *cross sectional*. Sampel sebanyak 40 mahasiswa semester II Program Studi D3 Teknologi Laboratorium Medis Poltekkes Kemenkes Yogyakarta diambil secara *consecutive* sampling. Pemeriksaan kadar natrium serum dilakukan menggunakan metode kolorimetri dengan alat fotometer Mindray BA-88A. Data dianalisis menggunakan uji *Shapiro-Wilk* untuk uji normalitas dan dilanjutkan dengan uji *Paired Sample T-Test*.

Hasil: Hasil penelitian menunjukkan bahwa kadar natrium serum lebih tinggi pada teknik penggunaan *tourniquet* yang tidak segera dilepas dengan rerata selisih sebesar 1,3 mmol/L (persentase selisih 0,87%). Hasil uji *Paired Sample T-Test* menunjukkan nilai signifikansi 0,017 ($p < 0,05$), yang berarti terdapat perbedaan secara statistik antara kedua variasi teknik penggunaan *tourniquet*.

Kesimpulan: Terdapat perbedaan antara kedua teknik penggunaan *tourniquet* terhadap kadar natrium serum.

Kata Kunci: *Tourniquet*, natrium serum, teknik flebotomi, pra-analitik, kolorimetri.