

ABSTRACT

Deanty Adiani, NIM : 1534039, 2015. “The different sodium level on the blood serum separated by the centrifugation at 3000 *RPM* for 5 Minutes and 4400 *RPM* for 3 Minutes”. Bachelor Thesis. DIV Medical Analysis, Faculty of Medical Science, Universitas Katolik Musi Charitas.

Background: Sodium is the most abundant cation in the external fluid where there are 60Meq perkilograms of body weight. A small amount of sodium (approximately 10 – 14 mEq/L) is in the intra-cell fluid. More than 90% of osmotic pressure in extra-cell is determined by the salt containing sodium chloride (NaCl) and sodium bicarbonate (NaHCO³). Thus, the osmotic pressure change in extra-cell correlates to the change of sodium concentration. Moreover, the handling of the examination sample plays an important role in the pre-analysis process in sodium electrolyte test. This present study aims to investigate the sodium level containing in the blood serum and see the effect of centrifugation speed and time in the sodium level test result. There are two centrifugation approaches which are the centrifugation at 3000 rpm for 5 minutes and the centrifugation at 4400 rpm for 3 minutes.

Method: This study is pre-experimental research in which the sample is not randomly obtained. To be more specific, the study uses the *Static Group Comparison* to compare each approach. The sampling technique used in this study is depended on inclusion and exclusion criteria. 22 tubes are containing the sample and all the samples are divided into two treatments. The first treatment is conducted by centrifuging the sample at 3000 rpm for 5 minutes, while the second treatment is conducted by centrifuging the sample at 4400 rpm for 3 minutes. The sodium level is analyzed using EasyLyte Analyzer Instrumentation with a specific ISE method. After the analysis, all the obtained data is statistically analyzed using the paired t-test.

Result: The result shows that there is a significant effect of centrifugation speed and time in the sodium level analysis. It is based on the statistical analysis showing the probability value = 0,0006 with $\alpha = 0,025$. From the result, the p-value is less than α value, indicating there is a significant difference in the sodium level centrifuged at 3000 rpm for 5 minutes and 4400 rpm for 3 minutes. To be more specific, the sample which centrifuged at 3000 rpm for 5 minutes obtains 138,99 mg/dL of sodium level, in which the sample which centrifuged at 4000 rpm for 3 minutes has 138,57 mg/dL of sodium level.

Conclusion: The result indicates that the shorten centrifugation time should be done carefully especially in the pre-analytical stage analysis.

Keywords: Centrifugation speed, Centrifugation Time