



EFFECT OF DETERGENT CONTAMINATIONS ON ROUTINE SERUM BIOCHEMICAL ANALYTES – A LABORATORY BASED STUDY

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ABSTRACT

The potential use of Teepol, Lysol and sodium hypochlorite is frequent in recycling of specimen collection tubes by the state hospitals in Sri Lanka. The presence of detergent residues in collection tubes was thought to be the reason for uncertain results in recent past. This raised the concerns to evaluate the effect of washing of the specimen collection tubes by various detergents on analysis of serum creatinine, Aspartate Transaminase, Na⁺ and K⁺ and to determine detergent contamination by detergent residue testing (pH and conductivity). Three sets of newly purchased glass Khan tubes were washed using 1% Teepol, 1% Lysol and 0.1 % sodium hypochlorite. Ten randomly selected detergent washed tubes of each set were subjected to detergent contamination tests. Blood (1000 µl) from a single donor was aliquoted to a Teepol washed (Test) tube and to a newly purchased plain glass Khan tube (Control). Both tubes were tested for serum creatinine, AST, Na⁺ and K⁺. Twenty such specimens were analyzed to study the effect of Teepol washed tubes over newly purchased plain glass Khan tubes. Same procedure was followed to assess the effect of Lysol and sodium hypochlorite washed tubes on the selected serum analytes with controls to each detergent washed tube. Paired t-test results worked out using SPSS-21 revealed that there was no significant difference (p>0.05) in serum creatinine, AST and potassium results when Teepol, Lysol or sodium hypochlorite washed tubes were used in specimen collection. Serum sodium results were significantly different in specimens collected to Lysol washed tubes (p<0.05) only. The Lysol washed tubes were significantly contaminated with acidic detergent residues. No significant contamination of neutral pH ionic detergent residues were found in conductivity meter testing. In conclusion if the cleansing is done according to WHO guidelines with domestic detergents (Teepol, Lysol and sodium hypochlorite) will not have any significant effect on some analytes. Newly purchased tubes should be recommended in critical investigations such as serum electrolytes to improve the accuracy of laboratory reports.

Keywords: Teepol, Lysol, Sodium hypochlorite, creatinine, AST, sodium ions and potassium ions