M381

Improving troponin T turnaround time by changing barcode type

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Background-aim

Laboratory turnaround time (TAT) is one of the most important indicators of the quality and effectiveness of laboratory performance. In this study, we aimed to evaluate the effects of new barcode type usage for emergency department (ED) on TAT analysis of Troponin T test T in the emergency department (ED) of university hospital.

Methods

This study was carried out in the Clinical Biochemistry Laboratory of Pamukkale University in January-December 2018, for Troponin T test. In July, we started to use new barcode type which has red mark on the upper side. TAT was calculated in January-June and July-December 2018. TAT was calculated from the time when blood samples arrived at the laboratory and the time of completion and reporting of the test.The agreed TAT for Troponin T in our laboratory is 120 minutes.

Results

Between January-June 2018, total number of analyzed Troponin T were 14413 and the TAT averages were 114 minutes. During July-December 2018, after new barcode the number of analyzed test was 14087 and the TAT averages were 92 minutes.

Conclusions

Everyday hundreds to thousands of samples (both routine and emergency) analyse in the Central Biochemistry Laboratory. During this laboratory workload technicians may be delayed to detect and analyze emergency samples. TAT time was shortened by increasing the awareness of technicians with new barcode application.

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M382

Influence of hemolysis in basic coagulation parameters

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Background-aim

Hemolysis is preanalytical incidence with a prevalence around 3,3%. It is the most frecuent cause of rejected samples in the laboratory. However, hemolysis effect in basic coagulation parameters (prothrombin time (PT) and activated partial thromboplastin time (APTT)) has been less studied. The aim of our study is evaluate the influence of hemolysis in these analytes.

Methods

We made two pools of plasma: one with patients which INR was less than 1,5 and another group with INR more tan 1.5. In both pools were performed hemolysis in vitro adding growing concentration of Hemoglobin (Hb) from 25 to 2000 mg/dl (25, 50, 100, 200,400, 500,1000,2000). All samples generated were processed in CA-500 (Sysmex®) to obtain basic coagulation tests (PT and APTT). Differences pre and post hemolysis were evaluated according to Spanish Minimum Consensus Performance Specifications (SMCPS).

Results

Both in the INR group < 1.5 and in group> 1.5, percentage of change (PC), for TP and APTT, in the different grades of hemolysis, was lower than that published by SMPC (31% and 24% respectively). For the TP the maximum change was 6% with a concentration of Hb of 1 mg/dl whereas for the APTT was 9% with 0.5 mg/dl Hb. No linear relationship was observed between increased hemolysis and PC.

Conclusions

Our results have shown that TP and APTT, do not undergo clinically significant changes after hemolysis and question the policy of rejection of samples published by CLSI guidelines.

Our future goal is investigate effect of hemolysis in patients with anticoagulant treatment.

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M383

Comparison of commercially available 25OHD and 1,25(OH)2D assays: Experience of pediatric hospital laboratory participating in DEQAS proficiency testing

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Background-aim

Serum 25OHD is a reliable biomarker of vitamin D status. Hormonal active vitamin D metabolite - $1,25(OH)_2D$ - is less often used in clinical practice. Both accuracy and precision are important factors for proper diagnosis of vitamin D deficiency and activity.

The aim of the study was to comprise of methods for serum determination of 25OHD (automatic CLIA on IDS-iSYS and LIAISON analyzers) and $1,25(OH)_2D$ (semi-automatic CLIA on IDS-iSYS analyzer and manual RIA) in pediatric and DEQAS samples.

Methods

The intra- and inter-variability (CV_{intra} and CV_{inter}) of 25OHD and $1,25(OH)_2D$ measurements on the IDS-iSYS platform in pediatric samples were calculated. The comparison of the IDS-iSYS CLIA methods of 25OHD and $1,25(OH)_2D$ determinations with the LIAISON CLIA and manual RIA methods, respectively, was performed. The accuracy of the CLIA method of 25OHD quantification on the IDS-iSYS was evaluated using DEQAS HPLC and LC-MS/MS data.