

## **EVALUATION OF QUANTITATIVE CARDIAC TROPONIN POCT DEVICES FOR THEIR USE IN AN EMERGENCY SETTING**

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This study was undertaken to evaluate the diagnostic accuracy and practicality of two POCT cardiac troponin-I devices Radiometer AQT90 Flex and Abbott i-STAT for their use for the quantitative analysis of Cardiac Troponin I (cTnI) for Emergency Department. The Roche Elecsys 2010 was used as the reference analyzer.

Twenty five blood samples were collected in Lithium Heparin. Samples were centrifuged and plasma was separated. The same plasma sample was processed on the three different analyzers at the same time.

The performances of the three analyzers were compared by using Regression analysis. The results were assessed according to the cut-off of each analyzer as per 10% CV at the 99th percentile. The Cut off for Elecsys was 0.3 ng/mL; for AQT90Flex=0.039 ng/mL and for i-STAT= 0.10 ng/mL. The results of the three analyzers were also correlated according to American Association of Bioanalysts' (AAB) allowable differences. The allowable difference for cTnI is  $\pm 30\%$ . for the qualitative out-comes, the concordance was also calculated

The data was analyzed into three studies.

In study 1: AQT 90 and Roche Elecsys 2010 were compared. The R = 0.9135 and the bias of 28% of the results falls within the  $\pm 30\%$  allowable difference. While 76% of results agreed in interpretation as qualitative outcomes (Positive/Negative).

In study 2: i-Stat System and Roche Elecsys 2010 were compared. The R= 0.9102 and the bias of 21.7 % of the results falls within the  $\pm 30\%$  allowable difference. Meanwhile 73.9% of results agreed in interpretation as qualitative outcomes.

In study 3: The AQT 90 and i-Stat System were compared. The R = 0.9607 and the bias of 8.6% of the results falls within the  $\pm 30\%$  allowable difference. All paired patient samples agreed in interpretation as qualitative outcomes. The results showed concordance of 100%.

In conclusion both AQT90 and i-STAT can be appropriately used in an Emergency Department set up. The POCT testing can be used as rapid access to cTnI and would help clinicians for further actions in AMI and ACS. cTnI assay in POCT setting will minimize the period of hospitality. These studies have not intended to evaluate the clinical assessment. Clinical assessment is crucial in diagnosing cardiac infarction.