The Effect of *in-vitro* Haemolysis on Prothrombin Time Test Results of Patients Taking Warfarin and Attending Department of Haematology Teaching Hospital Jaffna

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Haemolyzed samples received for coagulation tests including Prothrombin Time (PT) test are rejected, assuming that intracellular contents of lysed erythrocytes have an impact on the tests. However, this statement is not confirmed with a defined cause or a mechanism. In literature, true impact of haemolysis on PT test and other coagulation tests have been rarely investigated and results too are controversial. Non haemolyzed blood samples of warfarinized patients (n = 39) and healthy controls (n = 27) were subjected to mechanical haemolysis by forcibly passing the sample through a 23 gauge needle once. PT test was performed on all the samples before haemolysis and after haemolysis using an analyzer utilizing photo-optical method. Plasma Hb concentration was measured in all the samples after haemolysis by spectrophotometry. Statistical analysis was carried out between PT differences in samples before haemolysis and after haemolysis and the effects of haemolysis on PT test results were measured. The cut off value in plasma haemoglobin (Hb) for PT was determined. Results show an increase in PT results in patients and healthy controls with the hemolysis. However, statistical findings revealed that there is an impact on PT results by haemolysis up to a certain degree (control PT- 10.68 ± 0.63 vs. 11.24 ± 1.07, P value < 0.05 and patient PT- 25.95 ± 8.77 vs. 27.32 ± 9.16, P value < 0.05). The cut off value for plasma Hb; for controls was 1.2 g/dL with 100 % sensitivity and 96.2 specificity; for warfarinized patients 1.0 g/dL with 100 % sensitivity and 78.2 % specificity. These findings lead to the question as to whether all haemolyzed samples received for PT testing should be rejected.

Keywords: Haemolysis, Prothrombin Time, Haemoglobin, Warfarin