Comparison of international normalized ratios provided by the new finger stick device and laboratory-based venipuncture in an out-patient care center managed anticoagulation clinic

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Introduction: Coumadin anticoagulation therapy is indicated in a variety of thromboembolic conditions. Close INR monitoring is required to maintain therapeutic range in order to decrease complications, emergency room visits, and medical costs associated with Coumadin therapy. To achieve this, tight quality control in primary health care systems is undeniably important. Using finger stick device measurement of the international normalized ratio (INR) is increasingly common in outpatient, inpatient, nursing home, and home care environments. The purpose of this study is to comparison with INR provided by the new finger stick device and Laboratory-based Venipuncture in our primary care center managed anticoagulation clinic.

Methods: The INR data was collected from 8 patients receiving Coumadin during a period of 4 months. INR was collected by the lab draw for 2 months and finger stick device for next 2 months. The venous plasma INR was measured from a single laboratory coagulation analyzer and the capillary whole blood INR were obtained from a single finger stick device.

Results: The total number of blood samples collected for INR analyses were 101, 53 samples were collected by the lab draw and 48 samples were obtained for finger stick analysis. In this study, the difference between the two methods currently used for monitoring INR, each for a 2 months period was evaluated. It was noticed that 55% (29/53) of INRs were in the therapeutic range when collected by the lab draw as compared with 67% (32/48) of INRs in the therapeutic range when collected by the finger stick device. However, this difference was not statistically significant (P>0.05).

Discussion: In a finger stick measurement of INR, the patient applies a small amount of blood to a test strip and then feeds the strip into the device. The benefits of by using finger stick device for INR measurement include convenient, low cost, and fewer medical complications. Additionally, off-target INR values can be adjusted more regularly and more quickly. In contrast, previous clinical study has shown that the capillary whole blood INR was not significantly different from the laboratory-based venipuncture. The capillary whole blood INR has the potential advantage of obtaining an INR result in general practice, thus allowing direct assessment and management of INR instantaneously.

Conclusion: Results suggest that there is no statistically significant difference between the finger stick device and Laboratory-based Venipuncture for INR measurement in our ambulatory center managed anticoagulation clinic.