Comparison of the INR (International Normalized Ratio) levels obtained by portable coagulometer and laboratory in a clinic specializing in oral anticoagulation

Zilda Machado Meneghelo; Cecilia Maria Quaglio Barroso; Idelzuita Leandro Liporace; Aline Pivetta Cora

Adress: Instituto Dante Pazzanese de Cardiologia - Avenida Dr. Dante Pazzanese, 500 Vila Mariana, São Paulo - SP - Brasil Postal code - 04012-909

Abstract

Background: Therapy with Vitamin K antagonists (VKA) is effective in reducing thromboembolic events in various diseases. There are limitations however, which limit clinical handling and maintaining INR within therapeutic range. Studies have shown that portable coagulometers, when compared to laboratory tests, are more practical and provide better patient adherence and involvement towards treatment which results in better INR control. This study aimed to evaluate laboratory obtained INR results compared to two different portable coagulometers.

Methods: A prospective study which monitored 1009 patients in the Anticoagulation Clinic at the Institute Dante Pazzanese of Cardiology in São Paulo between July and September 2012. Patient INR values were performed by the laboratory though venipuncture and then compared to INR values obtained by capillary puncture from two different portable coagulometers.

Results: Overall, 1009 patients were included in the study; among these, 520 (51,5%) are male with average age of 59,6 years (13-91). The more common indications were atrial fibrillation (49,9%) and mechanical prosthesis (33,7%). The correlation coefficient was of 0,95 with Coaguchek XS Plus® and 0,88 with INRatio PT Monitor® compared to laboratory (figure 1). In patients with INR < 2 (lower than therapeutic range), the coefficient was 0,92 and 0,81 for Coaguchek XS plus® and INRatio PT Monitor® respectively. In patients within therapeutic range (INR 2 - 3), the coefficient was 0,86 with Coaguchek XS Plus® and 0,76 with INRatio PT Monitor®. For INR above therapeutic range (INR > 3.0) the correlation was 0,80 with Coaguchek XS Plus® and 0,54 with INRatio PT Monitor®. As for concordance between methods, the intraclass correlation coefficients (ICC) were slightly smaller than those previously stated (ICC=0,899 with Coaguchek XS Plus® and ICC=0,716 with INRatio PT Monitor®).

Conclusion: The use of portable coagulometers was comparable to laboratory tests and better correlation coefficients were observed with Coaguchek XS Plus® and in patients with INR lower or within therapeutic range. Portable coagulometers proved to be a useful and reliable tool for INR control in patients using VKA.