

題名:Accuracy of the EasyTouch blood glucose self-monitoring system: a study of 516 cases

作者:蔡銘川

Ken-shwo Dai; Ken-shwo Dai; Ping Ho; Chien-Chih Chen;  
Wen-Chung PengMing-Chuan Tsai

貢獻者:醫學檢驗暨生物技術學系

上傳時間:2009-10-02T08:52:46Z

摘要:BACKGROUND: Self-monitoring blood glucose device is an important tool for diabetes patients to efficiently control their blood glucose concentrations. We evaluated the accuracy of EasyTouch glucose monitoring system. METHODS: Capillary blood glucose concentrations measured using EasyTouch and the reference values obtained from Yellow Springs Instruments (YSI) 2300 STAT were performed in the Department of Laboratory Medicine, Wei-Gong Memorial Hospital. Results were evaluated using (1) linear regression analysis, (2) Clarke Error Grid analysis, (3) percentage of readings within a defined range of deviation from the reference value, (4) bias plots, and (5) coefficients of variation (CVs) calculated from 60 measurements in series. RESULTS: The window of the 516 EasyTouch readings covered a range from 42 to 555 mg/dl. Linear regression analysis yielded a regression slope 0.9972, intercept 1.899 mg/dl,  $r^2$  0.9571, and Syx 14.89 mg/dl. A Clarke Error Grid analysis showed 100% of the EasyTouch readings in clinically acceptable zones A and B. Of the EasyTouch readings, 98.3%, 91.9%, 78.3% and 46.9% were found within  $\pm 20\%$ ,  $\pm 15\%$ ,  $\pm 10\%$ , and  $\pm 5\%$ , respectively, of the reference values. Further analysis showed that the percentage of EasyTouch readings within the defined intervals was similar in three glucose ranges ( $\leq 100$ , 101-200, and  $\geq 201$  mg/dl). The CVs for the four lots of strips (lot 1 to lot 4) ranged from 3.5 to 5.5%, 2.1 to 4.8%, 1.8 to 3.6%, and 3.0 to 5.7%, respectively. CONCLUSIONS: EasyTouch provides high

accurate and precise glucose readings over a wide range of glucose concentrations.