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Prevention

VALIDATION REPORT FOR THE MICROLIFE CENTRAL BLOOD PRESSURE MONITOR

ACC Moderated Poster Contributions

McCormick Place South, Hall A

Sunday, March 25, 2012, 9:30 a.m.-10:30 a.m.

Session Title: Stiff Hearts and Stiff Vessels: The Hypertensive Patient

Abstract Category: 7. Prevention: Hypertension

Presentation Number: 1180-114

Authors: HaoMin Cheng, Chen Chen-Huan, Department of Medicine, Taipei Veterans General Hospital, Taipei, Taiwan, ROC

Background: The superiority of prognostic value of blood pressure (BP) measured at central aorta (CBP) over conventional brachial BP measured by cuff-based BP monitors has reignited the development of new non-invasive techniques for estimating CBP. The present study validated the accuracy of CBP measured by a newly developed stand-alone CBP monitor.

Methods: The CBP monitor provided readings of cuff systolic blood pressure (SBP), cuff diastolic blood pressure (DBP), central SBP, and central pulse pressure (PP). Cuff PP and central DBP were calculated from the relevant readings. Accuracy of the cuff and central SBP, PP, and DBP was validated against the simultaneously recorded invasive central aortic SBP, PP, and DBP, according to the requirements of international standards in 85 subjects (255 measurement; age range 30-93 years).

Results: The errors of cuff BP with reference to the range of variation of central SBP, PP, and DBP were -2.0 ± 6.0 , -7.5 ± 9.7 , and 3.3 ± 5.4 mmHg, respectively, with obvious underestimation at high CBP and overestimation at low CBP. In contrast, the corresponding band errors for the central SBP, PP, and DBP measured by the CBP monitor, were -0.4 ± 3.0 , -0.4 ± 5.2 , and 0.5 ± 4.2 mmHg, respectively, without obvious systematic bias. The distribution of measurement errors for central SBP, PP, and DBP surpassed all recommended standards and achieved an A grade by British Hypertension Society criteria.

Conclusions: Central SBP, PP, and DBP can be measured accurately by a stand-alone automatic blood pressure monitor.