
OBJECTIVE: To evaluate the overall performance of a new oscillometric wrist blood pressure monitor (Braun PrecisionSensor, Braun GmbH, Kronberg, Germany) as defined by the ANSI/AAMI SP10-1992 guidelines, and to analyze the data for the optimized selection of the algorithm that derives the blood pressure values from the oscillometric blood pressure curves.

METHODS: The clinical trial was a multi-center, open, within-subject evaluation. Repeated sequential blood pressure measurements were taken on the left wrist using the Braun PrecisionSensor, and on the left upper arm using a T-tube stethoscope and a mercury sphygmomanometer as a standard auscultatory blood pressure measurement device. The reported results are based on a sample of 86 adult male and female subjects (57% female, 43% male). Three sets of measurements with each of both devices were evaluated for each individual.

RESULTS: Close agreement was obtained between both observers in compliance with the ANSI/AAMI SP10-1992 guidelines. The mean values of the differences between the Braun PrecisionSensor and the mercury sphygmomanometer were 0.1mmHg for systolic and 1.9mmHg for diastolic blood pressure. The standard deviations were 7.1mmHg for systolic and 7.0mmHg for diastolic blood pressure. The use of an optimized algorithm improved the accuracy of the Braun PrecisionSensor, after which the standard deviations were 6.1mmHg for systolic and 6.3mmHg for diastolic blood pressure.

CONCLUSIONS: The Braun PrecisionSensor satisfies the Association for the Advancement of Medical Instrumentation's efficacy and safety criteria for both systolic and diastolic blood pressures with both algorithms analyzed.