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Surrogates for Ankle-brachial Index Measurement: Oscillometry or Duo-control?

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The aim of the study was to evaluate the accuracy of two automated blood pressure measurement devices, an oscillometric and a duo-control device, for assessment of the ankle-brachial index (ABI). ABI by Doppler ultrasound served as golden standard. It was hypothesized that the duo-control method, in combining the precision of the Korotkoff method and versatility of the oscillometric technique, might be the better surrogate. The study was targeted to geriatric patients. ABI measurements with each of the three devises were done randomly on consecutive days. Each leg was analyzed separately, thus making each leg an independent observation. Forty-two patients participated, age 82±6 years, 64% males, 71% hypertensive 71%, 36% diabetic. ABI <0.9 by Doppler ultrasound was found in 36% of patients. The mean difference between Doppler and oscillometric ABI (74 legs analyzed) was 0.12±0.4 (p 0.012). The mean difference between Doppler and duo-control ABI (78 legs analyzed) was 0.12±0.4 (p 0.006). With ABI <0.9 by Doppler ultrasound accepted as standard for diagnosing peripheral arterial disease (PAD), the oscillometric measurement had 82% sensitivity, 85% specificity, 72% positive predictive value, 89% negative predictive value for PAD diagnosis. Duo-control measurement had 83% sensitivity, 73% specificity, 66% positive predictive value, 88% negative predictive value for PAD diagnosis. Duo-control ABI measurements were often cumbersome. The oscillometric and duo-control ABI emerged as acceptable surrogates for PAD screening, but not accurate in establishing the actual ABI value. The oscillometric method was quicker and less dependent on cuff positioning; it may be the preferable surrogate for ABI assessment.