

Comparison of the Microlife Blood Pressure Monitor With the Omron Blood Pressure Monitor for Detecting Atrial Fibrillation



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Screening for atrial fibrillation (AF) by assessing the pulse is recommended in high-risk patients. Some clinical trials demonstrated that the Microlife blood pressure monitor (BPM) with AF detection is more accurate than pulse palpation. This led to a change in practice guidelines in the United Kingdom where AF screening with the Microlife device is recommended instead of pulse palpation. Many BPMs have irregular heart beat detection, but they have not been shown to detect AF reliably. Recently, one study, in a highly select population, suggested that the Omron BPM with irregular heart beat detection has a higher sensitivity for AF than the Microlife BPM. We compared the Microlife and Omron BPMs to electrocardiographic readings for AF detection in general cardiology patients. Inclusion criteria were age ≥ 50 years without a pacemaker or defibrillator. A total of 199 subjects were enrolled, 30 with AF. Each subject had a 12-lead electrocardiography, 1 Omron BPM reading, and 3 Microlife BPM readings as per device instructions. The Omron device had a sensitivity of 30% (95% confidence interval [CI] 15.4% to 49.1%) with the sensitivity for the first Microlife reading of 97% (95% CI 81.4% to 100%) and the Microlife readings using the majority rule (AF positive if at least 2 of 3 individual readings were positive for AF) of 100% (95% CI 85.9% to 100%). Specificity for the Omron device was 97% (95% CI 92.5% to 99.2%) and for the first Microlife reading of 90% (95% CI 83.8% to 94.2%) and for the majority rule Microlife device of 92% (95% CI 86.2% to 95.7%; $p < 0.0001$). The specificity of both devices is acceptable, but only the Microlife BPM has a sensitivity value that is high enough to be used for AF screening in clinical practice. © 2014 Elsevier Inc. All rights reserved. (Am J Cardiol 2014;114:1046–1048)

Active screening for atrial fibrillation (AF) in the primary care setting of high-risk patients, including all patients aged ≥ 65 years, is now recommended by practice guidelines.^{1,2} Microlife Corp (Taipei, Taiwan) developed a blood pressure monitor (BPM) with an algorithm that can detect AF so that patients can be automatically screened for AF whenever their blood pressure is measured. When used in primary care clinics in Great Britain, the Microlife BPM was able to detect twice as many patients with new AF as pulse palpation.³ As a result of this and other studies, the British National Institute for Health and Care Excellence has recommended the use of the Microlife WatchBP Home A BPM to screen for AF in primary care clinics throughout Great Britain.⁴ Omron Corporation (Kyoto, Japan) manufactures BPMs that include a feature designed to detect irregular heart rhythms. A trial by Marazzi et al, comparing the Microlife device with an Omron device, found that the

Omron device had a sensitivity of 100% with the Microlife device having a sensitivity of 92% for detecting AF.⁵ However, that trial included a highly selected population of patients who were referred to a hypertension clinic. These patients were younger than the typical patient with AF. Despite this, some physicians may still consider using the Omron device to screen for AF although its sensitivity for AF in the target population has not been assessed. The present study was designed to compare the Microlife monitor with the Omron monitor for detecting AF in an older population that is more typical of the patients at risk for asymptomatic AF.

Methods

The study population included all patients aged ≥ 50 years in 2 outpatient cardiology clinics, who agreed to be enrolled in the trial. Patients with pacemakers or defibrillators were excluded from the study. The tested BPMs were the Omron M6 Comfort (HEM-7223-E; Omron Healthcare Co., Ltd., Kyoto, Japan) and the Microlife BP A 200 (Microlife Corp., Taipei, Taiwan).

A technician obtained a 12-lead electrocardiogram and then took the blood pressure and AF readings using both the Omron and Microlife devices for each patient. The Microlife device recommends 3 sequential readings to diagnose AF. The Omron device does not make any claim for detecting AF. In the study by Marazzi et al, the Omron device showed

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This study was funded by Microlife Corporation, Taipei, Taiwan.

See page 1048 for disclosure information.

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