Are there really any differences between Home and Ambulatory BP? Comparison of the two out-of-office BP measurement methods using the same device

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Introduction

- Numerous studies have compared the two methods for out-of-office blood pressure (BP) monitoring, namely self-home measurements by patients at home (**HBP**) versus ambulatory BP (**ABP**) monitoring.
- In each of these studies, HBP and ABP measurements have been obtained using different devices, specifically designed for each method. Thus, the observed BP differences between the two methods are attributed, at least in part, to the different devices used.
- A novel dual-mode device allowing both ABP and HBP monitoring (Microlife WatchBPO3) is now available.

Objective

- To provide information on the true difference between HBP and ABP assessed according to European Society of Hypertension recommendations but using the same device for both methods.

Methods

- A total of 45 hypertensive adults on stable antihypertensive treatment for at least 4 weeks were included.
- Subjects performed HBP and ABP in random order using the device within 2 weeks.
- Office measurements were taken at the initial and final visit.
- HBP monitoring: according to the European Society of Hypertension schedule: 7 days, duplicate morning and evening measurements
- ABP monitoring: measurements every 30 min for 24 hours.
- Office measurements: triplicate after 5 min rest with 1 min interval

Results

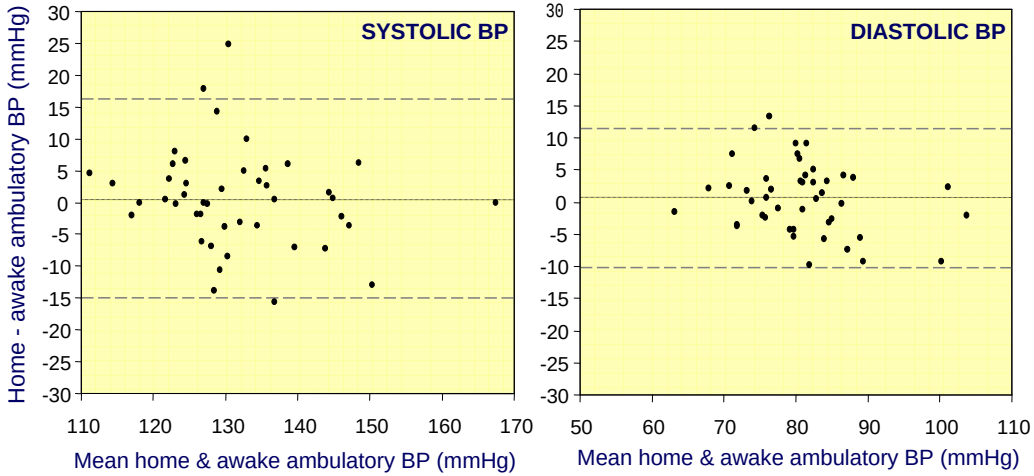
Office vs. HBP (days 2-7) vs. awake ABP

	Systolic BP	Diastolic BP	Pulse Rate
Office	136.1±14.4	84.2±9.6	70.7±10.6
HBP	131.9±10.6*	81.2±7.8+	68.0±7.8
Awake ABP	131.4±11.9*	80.6±9.1+	68.6±8.2

**, p<0.05; +, p<0.001 vs. the corresponding office measurement.*

HBP vs. awake ABP difference			
	Systolic BP:	0.5±7.7 mmHg	95%CI -1.8, 2.8
	Diastolic BP:	0.6±5.4 mmHg	95%CI -1.1, 2.2
	Pulse rate:	-0.6±5.3 b/min	95%CI -2.2, 1.0

Bland-Altman plot for HBP vs. awake ABP discrepancies



Horizontal lines indicate mean differences between measurements and limits of agreement (±2SD) within which 95% of the differences are expected to lie

Conclusions

The 95% CIs exclude any difference between HBP and awake ABP larger than 2.8 mmHg for systolic BP or 2.2 mmHg for diastolic BP, and a difference in pulse rate larger than 2.2 beats/min. These findings justify the European Society of Hypertension recommendation for using the same diagnostic threshold for HBP and awake ABP.

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