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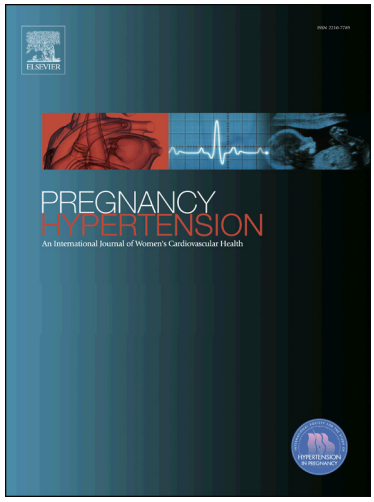

Reliability of home blood pressure monitoring devices in pregnancy

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RELIABILITY OF HOME BLOOD PRESSURE MONITORING DEVICES IN PREGNANCY

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Abstract

Home blood pressure monitors are freely available and used for women during pregnancy. The exact role of home blood pressure monitoring in pregnancy remains uncertain, and few such monitors have been validated for use in pregnancy. As it has been our Unit's policy to test these devices against sphygmomanometry (as the gold standard) before clinical use for some years now, we undertook this study to ascertain the degree of accuracy or inaccuracy of these devices in usual clinical practice.

We analysed 9 consecutive blood pressures (BP) alternately using an automated home BP device and sphygmomanometry in 127 pregnant women with hypertension using two different methods: a) a modified version of the British Hypertension Society's guidelines for analysing automated devices, and b) examining the difference between the mean of blood pressure readings by the device and sphygmomanometry for each patient.

87 devices (69%) had systolic BP within 5mmHg or less and 98 (77%) were within 5mmHg for diastolic BP. The frequency of systolic BPs within 5mmHg was similar for non-validated vs. validated devices (75 vs. 60%; p=0.23). Similarly, diastolic BP within 5mmHg was similar for non-validated vs. validated devices (86 vs. 68%, p=0.06).

Our findings showed that a wide variety of devices are used and few if any have been formally validated for use in pregnancy. As a group the devices provide accurate BP in the majority of women, but up to a quarter will have a BP difference of at least 5mmHg, and this is not related to the absolute BP. Furthermore using a home BP device validated for general use in non-pregnant subjects appeared **as** reliable as using other non-validated devices.

On the basis of these data we recommended clinicians always perform their own analysis of a patient's home BP machine accuracy prior to home use using a simple protocol as described here, even if the machine has been validated for general use.

Highlights