

P14.475 THE MICROLIFE 3AC1: AN ACCURATE BLOOD PRESSURE MEASUREMENT DEVICE IN PREGNANCY AND PRE-ECLAMPSIA

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Introduction: As one of the most commonly performed screening tests in pregnancy, accurate blood pressure measurement is vitally important to the diagnosis and management of hypertensive disorders in pregnancy. Few automated devices have been assessed for their accuracy in this population according to a recognised protocol. None of the devices, which achieved sufficient accuracy in pregnancy, were accurate in pre-eclampsia, except for one (device for self-measurement). We assessed the accuracy of the Microlife 3AC1 in a pregnant population, including pre-eclampsia, according to the protocol of the British Hypertension Society.

Methods: Forty-five pregnant women were recruited from the antenatal wards and clinics at a large teaching hospital. Sixteen of these women were pre-eclamptic according to the definition of the International Society for the Study of Hypertension in Pregnancy. Nine sequential same arm blood pressure measurements were taken by two trained observers, alternating between a mercury sphygmomanometer and the device. Data was analysed according to the guidelines of the British Hypertension Society protocol. An A or B grade is required for both systolic and diastolic pressures to pass the protocol.

Results: The Microlife 3AC1 achieved the highest possible grade for accuracy in pregnancy (A/A) and also passed in pre-eclampsia by achieving a B/A grade for systolic and diastolic pressure respectively. It also met the standard required by the Association for the Advancement of Medical Instrumentation (AAMI) by achieving a mean difference <5 mmHg (SD <8 mmHg) for both pregnancy and pre-eclampsia for systolic & diastolic pressures respectively [pregnancy -0.4(5.2) & -1.1(5.9); pre-eclampsia -1.1(7.1) & -3.7(4.1)].

Conclusion: The Microlife 3AC1 can be recommended for use in a pregnant population according to the BHS protocol. It is one of only two devices shown to be accurate in pregnancy, including women with pre-eclampsia.

Conflict of interest: None. Test devices supplied by Microlife.

P14.476 RAPID ASSESSMENT OF BLOOD PRESSURE IN THE OBSTETRIC DAY UNIT USING MICROLIFE MaM TECHNOLOGY

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Introduction: It is recommended that the average of repeated measures is used to confirm hypertension in pregnancy and exclude white-coat effects. This usually involves measurements over a period of more than one hour. The Microlife 3AC1 is a BHS validated upper arm oscillometric device featuring a MaM mode which uses the average of a minimum of 3 consecutive BP readings taken 15 seconds apart. The difference between each measurement is calculated by the device and influences the percentage of contribution to the final average reading. We compared MaM with single readings taken in a conventional manner.

Methods: Thirty hypertensive pregnant women were recruited from the obstetric day unit of a large teaching hospital. Single blood pressure measurements were taken at 0, 15, 30, 60 and 90 minutes using the Microlife BP 3BT0-A. Simultaneous measurements were also taken at 0 and 90 min using MaM technology.

Results: Systolic pressure fell over 90 minutes ($p=0.035$) compared to the first single reading, but diastolic BP did not ($p=0.54$). The difference between the first MaM and the first single reading was significantly different for systolic BP (5.6 mmHg, $p=0.017$), but not for diastolic BP (0.6 mmHg, $p=0.39$). The mean of all single readings and the first MaM reading were similar for both systolic and diastolic BP (SBP: 0.3 mmHg, $p=0.75$, DBP: 0.2 mmHg, $p=0.87$).

Conclusion: White-coat hypertension exists for systolic blood pressure in the context of the obstetric day unit. The MaM technology allows rapid and accurate characterization of blood pressure equivalent to repeated measures over 90 minutes.

Conflict of interest: None. Test devices supplied by Microlife.

was given to doctors and patients to assess the feasibility and interest of teletransmission.

During all the study, a hotline was available with 1464 calls received (42% doctors, 40% patients, 18% sponsor). The questions concerned technical issues of devices (from patients), protocol related, internet and identification code lost (doctors) and inclusions status (sponsor).

Conclusion: The study showed that adherence of GPs and cardiologists in the technique of teletransmission of HBPM results (48% for cardiologists and 39% for GPs) has to be improved. The major reason of discontinuation was technical problems. Nevertheless, adherence of patient to this technique is excellent with more than 97% who transmitted results.

P14.478 RELATION BETWEEN BLOOD PRESSURE AND BASAL NITRIC OXIDE SYNTHASE ACTIVITY IN RATS

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Aim: The aim of this study was to investigate the relations between basal nitric oxide synthase (NOS) activity in the selected parts of the cardiovascular and neuroendocrine system and blood pressure (BP) in normotensive Wistar (W) and borderline hypertensive rats (BHR).

Methods: We used 20 weeks old males of W, wBHR (offspring of Wistar dams and SHR sires) and sBHR (offspring of SHR dams and Wistar sires). BP was determined by tail-cuff plethysmography. NOS activity was determined by conversion of [³H]arginine to [³H]citrulline in aorta, left ventricle, right ventricle, hypothalamus, pituitary and adrenal glands.

Results: BP of W, wBHR, and sBHR was 111±3, 129±2, 132±2 mmHg respectively. NOS activity in the aorta of wBHR and sBHR was significantly higher than in W rats ($p<0.02$). Interestingly, there was a positive correlation between NOS activity in the aorta and basal BP ($r=0.68$, $p<0.003$, $n=18$) in all rats. There were no differences in NOS activity in the left and right ventricle in W, wBHR and sBHR rats. In the hypothalamus and pituitary, the lowest values of NOS activity were observed in wBHR ($p<0.01$ vs. W). In the adrenal glands, the lowest values were observed in W and significantly higher values were found in both wBHR and sBHR ($p<0.01$ vs. W).

Conclusion: No relations between basal NOS activity in the heart hypothalamus, pituitary and adrenal glands were observed in normotensive and BHR rats. However in the aorta basal NOS activity positively correlated with BP. This elevation of NOS may represent an adaptive mechanism to elevated sympathetic activation of rats with one hypertensive parent.

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P14.479 HOME BLOOD PRESSURE SELF-MONITORING: DIAGNOSTIC PERFORMANCE IN WHITE-COAT HYPERTENSION

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