

**Objective:** The objective of the present study was to investigate the relation between the plasma concentration of nifedipine and pressure control in hypertensive pregnant women.

**Methods:** Twenty-two hypertensive pregnant women taking oral slow-release nifedipine 20 mg every 12 h were evaluated. Serial blood samples were collected at times 0–12 h after administration of the last nifedipine dose during the third trimester of pregnancy. The blood pressure of the patients was measured 4 in 4 hours from the time 0 to 12 h. Concentrations of nifedipine were determined by liquid chromatography–tandem mass spectrometry (LC–MS/MS). The plasma concentration and the mean arterial pressure were reported as mean and standard deviation.

**Results:** The maximum fall in the measurement of mean arterial pressure after 4 h ( $95.4 \pm 10.2$  mmHg) was observed right after the mean maximum plasma concentration ( $27.5 \pm 10.6$  ng/mL) at time of maximum concentration ( $1.5 \pm 0.5$  h). As well as the values of mean arterial pressure at time 12 h ( $102.0 \pm 11.1$  mmHg) was similar to the values from time zero ( $106.8 \pm 11.5$  mmHg).

**Conclusion:** The study demonstrate the action of the drug during the dose interval used, as well as its efficacy.

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## Clinical science

### 75 Central blood pressure and arterial stiffness in various forms of hypertension in pregnancy

#### Risk factors, prediction of preeclampsia

Vasilii Chulkov, Natalya Vereina, Sergei Sinitsin, Valentina Dolgushina (South Ural State Medical University, Chelyabinsk, Russia)

**Introduction:** Arterial stiffness and central pressure measurements should be considered as recommended tests for the evaluation of cardiovascular risk in general population, whereas in pregnancy, their meaningfulness is not established. The estimation of these parameters for early detection of preeclampsia may be helpful.

**Objectives:** To evaluate the central (aortic) blood pressure (BP) and arterial stiffness in women with various forms of hypertension and their prognostic role in development of preeclampsia (PE).

**Methods:** In a prospective cohort study there were included 300 pregnant women: 106 – with chronic hypertension (CH) – group 1; 63 – with gestational hypertension (GH) – group 2; 10 – with PE – group 3; 21 – with preeclampsia superimposed on chronic hypertension (CH+PE) – group 4 and 100 – without hypertension (comparison group) – group 5. Ambulatory BP monitoring oscillometric measurement method with the definition of the central (aortic) BP and arterial stiffness parameters (augmentation index, reflected wave transit time, arterial stiffness index) in 16–22 weeks of pregnancy was performed in all patients using a 24-h BP monitoring system, ie, BPLab® and Vasotens® technology (Petr Telegin, Nizhny Novgorod, Russian Federation). Statistical analysis was performed using the statistical software package MedCalc®, version 11.5.0 (Mann–Whitney test, Kruskal–Wallis test, Pearson's chi-squared test, logistic regression

analysis, ROC-analysis). Statistical significance was considered to be a  $p < .05$ . Data are presented as mean  $\pm$  standard deviation.

**Results:** The average peripheral (brachial) systolic blood pressure (SBP) 24 h was higher in all pregnant women with hypertension: with CH ( $130 \pm 8.8$  mmHg), with GAG ( $136 \pm 6.9$  mmHg), with PE ( $136 \pm 6.9$  mmHg), with PE superimposed on CH ( $138 \pm 7.9$  mmHg) vs comparison group ( $118 \pm 5.1$  mmHg  $p_{1,2,3,4-5} < .05$ ). The highest levels of central (aortic) SBP were found in pregnant women with PE ( $121 \pm 6.8$  mmHg,  $p_{3-1,2,5} < .05$ ) and PE superimposed on CH ( $124 \pm 9.1$  mmHg  $p_{4-1,2,5} < .05$ ) vs with CH ( $117 \pm 7.5$  mmHg), GH ( $111 \pm 5.5$  mmHg) and comparison group ( $106 \pm 4.0$  mmHg). The average 24 h central (aortic) systolic BP above 115 mmHg measured in 16–22 weeks of pregnancy has a high diagnostic significance to predict the development of PE (sensitivity 90%, specificity 72%, AUC0.86; LR + 3.24; LR – 0.13;  $p < .001$ ). In pregnant women with PE superimposed on CH we revealed the highest parameters of arterial stiffness (augmentation index, % [ $9.9 \pm 11.0$  vs  $6.5 \pm 7.2$  in gr. 1;  $5.0 \pm 6.9$  in gr. 2;  $4.0 \pm 8.7$  in gr. 3 and  $4.0 \pm 5.0$  in comparison group,  $p_{4-1,2,3,5} < .05$ ] and arterial stiffness index [ $165.5 \pm 37.6$  vs  $146.8 \pm 15.3$  in gr. 1;  $150.5 \pm 19.0$  in gr. 2;  $149.0 \pm 18.0$  in gr. 3 and  $142.4 \pm 15.7$  in comparison group,  $p_{4-1,2,3,5} < .05$ ]. To assess the independent association between central BP, arterial stiffness and PE was used stepwise logistic regression method. Parameters independently associated with PE in our study were: average 24 h aortic systolic BP (OR 1.17; 95% CI 1.11–1.24;  $p < .001$ ) and arterial stiffness index (OR 1.03; 95% CI 1.01–1.05;  $p = .03$ ).

**Conclusions:** 24-h blood pressure monitoring in pregnant women with hypertension in 16–22 weeks of gestation may be useful to obtain additional information about central SBP and arterial stiffness as a prognostic parameters for prediction of preeclampsia.

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## Clinical science

### 76 Analysis of the ophthalmic artery doppler indexes in chronic arterial hypertension pregnant women

#### Ultrassound

Alex Oliveira Sousa, Lúcio Borges Araújo, Gizeli de Fátima Ribeiro Anjos, Maria Célia Santos, Wallisen Hattori, Angélica Lemos Debs Diniz (Federal University of Uberlândia, Uberlândia, MG, Brazil)

**Objective:** To assess the Doppler indexes of the ophthalmic artery in pregnant women who have been diagnosed with chronic arterial hypertension, as well as to compare these data with a group of non-hypertension pregnant women and to identify the cut-off points for differentiating between the indexes of both groups.

**Method:** This investigation refers to transversal observational study, which assessed 220 pregnant women who have chronic arterial hypertension as well as non-hypertension pregnant women in their second and third trimesters constituting, respectively, the study group and the control group. All the patients underwent Doppler evaluation of the ophthalmic artery, with an evaluation of the resistance indexes (IR), pulsatility (IP), and ratio between velocity peaks (RPV).

**Results:** There was a meaningful difference between the averages of the Doppler indexes of the ophthalmic artery between the two groups assessed; showing lower IR and IP values and higher RPV in the study group in relation to the control group and it was possible to identify cut-off points for differentiation between the indexes of both groups

**Conclusion:** There are flow alterations in the ophthalmic arteries of pregnant women who have chronic arterial hypertension,