Central arterial pressure in pregnancies complicated by chronic hypertension: could it be an important diagnostic and prognostic value in clinical practice?

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Objective. Normally clinical evaluation and management of patients with chronic hypertension in pregnancy focuses on the evaluation of laboratory parameters and peripheral blood pressure. The aim of the study was to investigate the haemodynamic parameters and central blood pressure values in patients with chronic hypertension during the II and III trimester.
Materials and Methods. We enrolled 39 patients, including 14 patients with chronic hypertension on methyldopa therapy. All the women underwent peripheral and central blood pressure measurement using USCOM BP PLUS and hemodynamic assessment using USCOM.
Results. Patients with chronic hypertension showed higher values of cMAP both in the second and third trimester (94.07 ± 7.84 *vs* 88.03 ± 7.95; 94.43 ± 10.17 *vs* 83.76 ± 10.03), higher pMAP (94.07 ± 10.08 *vs* 85.51 ± 9.92) and PKR (31.05 ± 11.92 *vs* 23.36 ± 9.93) in the third trimester, higher TVR (1131.23 ± 204.23 *vs* 986.22 ± 181.83; 1174.10 ± 224.23 *vs* 996.28 ± 229.83) in both the second and third trimester; a lower INO in the third trimester compared to the second (1.65 ± 0.21 *vs* 1.90 ± 0.17), as shown in **Table 1**.
Conclusions. It was already known that pregnancies complicated by chronic hypertension show a hypodynamic circulation, but peripheral blood pressure normally measured at the level of the brachial artery does not adequately reflect the conditions of the cardiovascular system; in fact, the most relevant differences were observed above all in central blood pressure values, both in the second and third trimesters, proving to be much more sensitive than peripheral pressure and therefore more suitable for the correct management of these patients.

Table 1.

cMAP	*Controls*	*CH*	*p*
II trimester	88,03 ± 7,95	94,07 ± 7,84	**0,0280**
III trimester	83,76 ± 10,03	94,43 ± 10,17	**0,0030**
p	0,1018	0,9173	
pMAP			
II trimester	90,42 ± 7,35	94,67 ± 7,27	0,0904
III trimester	85,51 ± 9,92	94,07 ± 10,08	**0,0143**
p	**0,0525**	0,1779	
CO			
II trimester	7,60 ± 1,09	7,03 ± 1,24	0,1443
III trimester	7,26 ± 1,65	6,76 ± 1,04	0,2353
p	0,3942	0,5379	
HR			
II trimester	85,90 ± 14,52	86,78 ± 13,49	0,8534
III trimester	85,28 ± 13,36	89,54 ± 10,96	0,3165
p	0,8758	0,5575	
TFc			
II trimester	384,02 ± 27,21	380,75 ± 48,88	0,7889
III trimester	380,29 ± 32,44	390,39 ± 32,41	0,3569
p	0,6616	0,5439	
SVV			
II trimester	19,75 ± 6,20	20,75 ± 12,34	0,7371
III trimester	19,89 ± 0,29	22,20 ± 8,57	0,1818
p	0,9107	0,7209	
SVR			
II trimester	986,22 ± 181,83	1131,23 ± 204,23	**0,0281**
III trimester	996,28 ± 229,83	1174,10 ± 224,23	**0,0239**
p	0,8644	0,6014	
PKR			
II trimester	21,89 ± 6,30	23,63 ± 3,69	0,3516
III trimester	23,36 ± 9,93	31,05 ± 11,92	**0,0374**
p	0,5349	**0,0350**	
INO			
II trimester	1,80 ± 0,27	1,90 ± 0,17	0,2192
III trimester	1,69 ± 0,41	1,65 ± 0,21	0,7361
p	0,2681	**0,0019**	