SUPPLEMENTAL MATERIAL

Functional and Structural Vascular Biomarkers in Women 1 Year after a Hypertensive Disorder of Pregnancy

Kjartan Moe[a,b]

Meryam Sugulle[a,c]

Ralf Dechend[d]

Kristin Angel[e]

Anne Cathrine Staff [a,c]

[a]Faculty of Medicine, University of Oslo, Oslo, Norway,
[b]Department of Obstetrics and Gynaecology, Baerum Hospital, Vestre Viken Hospital Trust, Drammen, Norway

[c]Division of Obstetrics and Gynaecology, Oslo University Hospital, Oslo, Norway

[d]Experimental and Clinical Research Center, a cooperation of Charité-Universitätsmedizin Berlin and Max Delbruck Center for Molecular Medicine and, HELIOS-Klinikum, Berlin-Buch, Department of Cardiology and Nephrology, Germany

[e] Division of cardiology, Akershus University Hospital

Supplemental Tables

Supplemental Table 1

Significant variables included in the multivariate regression analysis

		Controls vs. Hypertensive Disorders of Pregnancy	Controls vs. Term Preeclampsia	Controls vs. Preterm Preeclampsia	Controls vs. Gestational Hypertension
	Model				
PWV					
	1	HDP†		Preterm PE†	GH*
	2	HDP†, age†, bmi†	age*, bmi*	Preterm PE†, age*, bmi*	GH*, age*
	3	age†, BMI†, DBP†	age*, BMI*, DBP†	age*, BMI*, DBP*	age*, BMI*, DBP†
	4	age†, BMI†, DBP†	age*, BMI*, DBP†	age*, BMI*, DBP*	age*, BMI*, DBP†
AIx75					
	1				
	2	age†, bmi*	age†	age†	age†
	3	age†, DBP†, SBP*, BMI*	age†, DBP*	age*, DBP*	age†, DBP*
	4	age†, DBP†, SBP*, BMI*	age†, DBP*	age*, DBP*	age†, DBP*
CIMT					
	1				
	2	age†, BMI*	age*, BMI*	age*, BMI*	age*
	3	age*, BMI*, anti HT*, LDL†	age*, BMI*	age*, BMI*, anti-HT*	age*
	4	age*, BMI*, anti HT*, LDL†	age*, BMI*	age*, BMI*, anti-HT*	age*
RHI					
	1				
	2	BMI*			
	3	BMI*,smoking*, DBP†	smoking*		smoking*
	4	BMI*,smoking*, DBP†, primiparity*, SGA*	smoking*, SGA*		smoking*

HDP: Hypertensive Disorder of Pregnancy. GH: Gestational Hypertension. PWV: Pulse Wave Velocity (m/s). AIx75: Augmentation Index adjusted for Heart Rate (%). RHI: Reactive Hyperemia Index. CIMT: Common carotid artery intima-media thickness (um). *:$p<0.05$ and †:$p<0.01$ when comparing HDP, Term Preeclampsia, Preterm Preeclampsia or GH to controls on linear regression analysis. Model 1: unadjusted. Model 2: adjusted for body mass index (BMI), age. Model 3: adjusted for BMI, age and cardiovascular risk factors (DBP/SBP: diastolic/systolic blood pressure; antiHT: use of antihypertensive; LDL: low-density lipoprotein). Model 4: Model 3 adjusted for pregnancy characteristics.

Supplemental Table 2

Regression analysis comparing levels of AIx75 and CIMT in women with previous HDP to parous controls with extreme cases excluded.

	Model	Controls	HDP	Term preeclampsia	Preterm preeclampsia	GH
		B (95%CI)	B (95%CI)	B (95%CI)	B (95%CI)	B (95%CI)
AIx75(%)	1	9.8 (7.7-11.8)	1.5 (-1.2-4.2)	0.9 (-2.5-4.3)	2.7 (-1.3-6.7)	1.2 (-2.7-5.2)
n=191	2		1.8 (-0.6-4.3)	1.9 (-1.1-4.9)	2.9 (-0.9-6.7)	1.8 (-1.7-5.3)
	3		-0.3 (-2.9-2.3)	0.0 (-3.1-3.2)	0.4 (-3.8-4.6)	-0.8 (-5.0-3.3)
	4		-0.3 (-2.9-2.3)	0.0 (-0.1-0.0)	-0.4 (-3.8-4.6)	-0.8 (-5.0-3.3)
CIMT (μm)	1	465 (451-478)	7 (-11-25)		1 (-25-26)	
n=209	2		6 (-11-24)		0 (-25-25)	
	3		9 (-8-27)		2 (-23-27)	
	4		9 (-8-27)		2 (-23-27)	

HDP: Hypertensive Disorder of Pregnancy. GH: Gestational Hypertension. AIx75: Augmentation Index adjusted for Heart Rate (%). CIMT: Carotid Intima-Media thickness (um). 95%CI: 95% confidence interval for B. *:$p<0.05$ and †:$p<0.01$ when comparing HDP, Late Preeclampsia, Early Preeclampsia or GH to controls on linear regression analysis. Model 1: unadjusted. Model 2: adjusted for BMI, age. Model 3: adjusted for BMI, age and cardiovascular risk factors (as in Supplemental Table 1). Model 4: Model 3 and further adjusted for pregnancy characteristics, educational level and follow-up time from index delivery.

Supplemental –Methods

Examinations were performed in fasting (≥6 hours) women in supine position in a temperature-regulated, quiet room with dimmed lights and with at least 10 minutes bedrest before PWV, AIx75, and RHI-assessments. Four trained examinators assessed endothelial function using EndoPAT™-2000 (Itamar Medical Ltd., Caesarea, Israel). The brachial artery was occluded by inflating a BP cuff to suprasystolic levels for 5 minutes to induce reactive hyperemia. The RHI, a standardized post-occlusion to pre-occlusion-ratio was calculated by the software. Lower RHI is associated with poorer endothelial function [15].

We assessed carotid-femoral PWV using Sphygmocor® CvMS, version 9 (AtCor Medical, Sydney, Australia) according to guidelines [1.] The wave travel distance was obtained by subtracting the distance from the carotid location to the sternal notch from the distance between the sternal notch and the femoral site of recording. Transit time was calculated by the integrated software using simultaneously recorded electrocardiogram as reference for at least 20 cycles. Only recordings with standard deviation of the transit time <10% as calculated by the software were considered acceptable.

AIx75 was assessed with the same device as PWV. Peripheral pressure waveforms were recorded from the radial artery at the wrist with the tonometer. AIx75 was derived from the corresponding central aortic waveforms by the integrated software [17]. The mean of three acceptable recordings (Operator Index ≥80%) was included for further analysis.

Carotid Intima-Media Thickness (CIMT) was measured using the multiarray echotracking system (Art.Lab®, Esaote, Maastricht, the Netherlands) equipped with a 10-5 MHz linear array. Measurements were performed according to guidelines from the European Stroke Conferences in the far wall of 10-20 mm long segments in the distal common carotid artery about 1 cm proximal to the carotid bulb 3 times on both sides [2]. Recordings with a CIMT standard deviation <10μm calculated by the included software were considered acceptable. The mean of three acceptable recordings were included for further analysis.

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