

**INTRODUCTION**

Gestational diabetes is characterized by hyperglycaemia occurring during pregnancy. It would be associated according to still poorly understood mechanisms, with the development of microvascular complications. Our goal is to determine the impact of gestational insulin resistance on endothelial function by evaluating the reactive hyperemia index (RHI, LnRHI).

**METHOD**

We conducted a descriptive and comparative study on a population of pregnant women aged over 20 and under 36, located in the gestational age group 24-38th week of amenorrhea and regularly followed in prenatal consultation. They are divided into two groups (G). G1: composed of control pregnancies without risk factor for gestational diabetes and with normal fasting blood sugar. G2: included pregnancies with diabetes whose OGTT came back positive. These women didn't have any chronic disease apart from diabetes discovered during pregnancy. Anthropo-physiological (age, weight, height, blood pressure) and biochemical (glycaemia, insulinaemia, HOMA-IR, cholesterol, triglycerides) parameters were measured. RHI and LnRHI were determined at Endopat 2000.

**RESULTS**

**Table 1: Average of anthropometric and physiological constants**

Anthropometric and physiological parameters	Control group	Gestational diabetes group	P value
Age (years)	30,5+/-5,7	32,1+/-5,3	0.296
weight (kg)	71+/-1.2	74.3+/-1.6	0.344
Height (m)	1,69+/-0,06	1,61+/-0,05	0.020
SBP (mm Hg)	108.9+/-9.1	118.4+/-10.8	0.057
DBP (mm Hg)	70+/-6.3	69.3+/-6.1	0.419
MBP (mm Hg)	83+/-7,07	75+/-2,9	0.249
HR (bitm)	88.1+/-6,5	92.8+/-8,2	0.145

SBP: Systolic blood pressure  
MBP: Mean arterial pressure  
Pvalue (p): significance level < 0.05  
DBP: Diastolic blood pressure  
HR: Heart rate

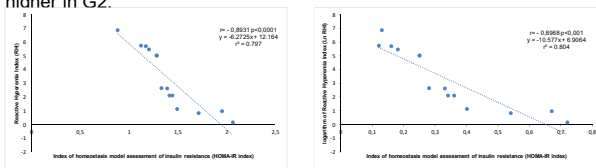
The two groups were matched for age, weight, blood pressure and heart rate.

**Table 2: Mean of biological variables**

Biological variables	Control group	Gestational diabetes group	P value
Glucose (g/l)	0,76+/-0,11	1,11+/-0,11	< 0.0001
Insuline (µU/ml)	7.67+/-4,35	22.9+/-3.75	< 0.0001
HOMA-IR index	1,51+/-0,97	6.29+/-1.23	< 0.0001
Total Cholesterol (g/l)	1+/-0,81	2,49+/-0,74	= 0.002
HDL Cholesterol (g/l)	0,45+/-0,23	0,8+/-0,19	= 0.004
LDL Cholesterol (g/l)	0,42+/-0,54	1,39+/-0,6	= 0.004
Triglycerides (g/l)	0,65+/-0,49	1,48+/-0,27	= 0.0018

HOMA-IR index: Index of Homeostasis Model assessment of insulin resistance  
Pvalue (p): significance level < 0.05.

Levels of: insulin (G1: 7.67 ± 4.35; G2: 22.9 ± 3.75; p<0.0001), HOMA-IR (G1: 1.51 ± 0.97; G2: 6.29 ± 1.23; p<0.0001), total cholesterol (G1: 1 ± 0.81; G2: 2.49 ± 0.74; p=0.002), HDL cholesterol (G1: 0.45 ± 0.23; G2: 0.8 ± 0.19; p = 0.004, LDL cholesterol (G1: 0.42 ± 0.54; G2: 1.39 ± 0.6; p = 0.004) and triglycerides (G1: 0.65 ± 0.49; G2: 1.48 ± 0.27; p = 0.0018) were significantly higher in G2.



**Figure 2: Link between RHI and HOMA-IR index - LnRHI and HOMA-IR index**

r: correlation coefficient  
p: p-value: significance level < 0.05  
r<sup>2</sup>: Determination of the coefficient of measurement of the predictive quality of the linear regression

RHI and LnRHI were negatively correlated with HOMA-IR (respectively, r = -0.8931, p<0.0001; r = -0.8938, p<0.0001). HOMA-IR index was independently associated with levels of RHI and LnRHI (respectively r<sup>2</sup>=0.797; p<0.0001); (r<sup>2</sup>=0.804; p<0.0001).

**CONCLUSION**

Gestational insulinresistance would be associated with endothelial dysfunction such as a decrease in endothelium-dependent vasodilatation reflecting microvascular damage and cardiovascular risk.

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**\* Corresponding author**

**Dr. Aissatou Seck,**  
Laboratory of Physiology and Functional Explorations,  
Faculty of Medicine, Pharmacy and Odonto-stomatology,  
Cheikh Anta Diop University, 5005 Dakar-Fann, Senegal  
E-mail: [aichaseck75@yahoo.fr](mailto:aichaseck75@yahoo.fr)