

SYLVIAN FISSURE AND INSULAR LOBE DEPTH IN NORMAL PREGNANCY VERSUS INTRAUTERINE GROWTH RESTRICTION IN SEVERE PRE-ECLAMPSIA

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Introduction

Definitions of pre-eclampsia have varied throughout the times. Improved understanding of the pathogenesis of pre-eclampsia has influenced the definitions. Pre-eclampsia is a pregnancy specific condition diagnosed when blood pressure is elevated above 140 mmHg systolic and/or 90 mmHg diastolic and proteinuria over 0.3 mg per day after 20⁺⁰ weeks of gestation. Pre-eclampsia is commonly divided into early- and late-onset disease and preterm and term subtypes based on the time of delivery or time of the diagnosis. The American College of Obstetricians and Gynecologists (ACOG) proposed, in the Task Force on Hypertension in gestation recommendations that, in the absence of proteinuria, pre-eclampsia could be diagnosed when newly diagnosed hypertension occurs in association with thrombocytopenia, impaired liver function, new development of renal insufficiency, pulmonary oedema, or new onset cerebral or visual disturbances. The Australasian Society for the Study of Hypertension and the Society of Obstetricians and Gynaecologists of Canada have adopted even broader definitions and include fetal features, such as fetal growth restriction, in the definitions.

Aim of the work

The aim of this study was to compare the Sylvian fissure depth and insular lobe depth via 2D transabdominal ultrasonography in normal pregnancy versus cases of severe pre-eclampsia with and without IUGR between 28-34 weeks of gestation.

Patients and Method

This study was a case control study that was carried out on 80 pregnant women between 28-34 weeks of gestation at Alshatby Maternity University hospital, Alexandria during the period from July 2022 to June 2023.

Group 1: Included 30 pregnant women with severe preeclampsia and complicated by fetal growth restriction. Group 2: Included 30 pregnant women with severe preeclampsia not complicated by fetal growth restriction. Group 3: Included 20 normotensive pregnant women with normal fetal growth who acted as controls. History taking: personal history (age, occupation, level of education, marital status, history of smoking), past history of medication, menstrual history, and obstetric history. Physical examination included: Body mass index calculation. Blood pressure measurement (2 blood pressure readings were obtained 4 hours apart). Abdominal examination (liver, spleen and loin). Laboratory investigations including: Complete blood count, Liver and kidney functions, Coagulation profile, Albumin-creatinine ratio.

Results

Table (1): Comparison between the three studied groups regarding AFI and Doppler parameters

	Severe PE without IUGR group	Severe PE with IUGR group	Control group	ANOVA test P value
Amniotic fluid index AFI (cm)				
Range	4.0-10.0	3-8.0	5-15	22.6
Mean	6.33	5.61	8.50	0.001*
SD	1.62	2.21	3.44	
RI umbilical artery				
Range	0.56-0.77	0.70-1.5	0.45-0.9	8.11
Mean	0.71	0.96	0.66	0.002*
SD	0.09	0.18	0.17	
RI middle cerebral artery				
Range	0.7-0.8	0.57-0.82	0.7-0.89	4.11
Mean	0.73	0.73	0.76	0.049*
SD	0.04	0.11	0.08	

Table (2): Comparison between the three studied groups regarding sylvian fissure and insular lobe depth

	Severe PE without IUGR group	Severe PE with IUGR group	Control group	ANOVA test P value
Sylvian fissure (cm)				
Range	0.89-1.96	1.05-1.32	1.32-2.33	12.85
Mean	1.38	1.26	1.68	0.013*
SD	0.40	0.09	0.42	
Insular lobe depth (cm)				
Range	1.92-2.91	2.24-3.15	2.28-3.4	9.11
Mean	2.36	2.34	2.86	0.012*
SD	0.38	0.26	0.42	

Conclusion

Preeclampsia seems to be associated with differences in the pattern of fetal brain cortical development regardless of its association with IUGR. Fetuses with prenatal growth restriction may have minor brain alterations. These differences should be taken in consideration in the ultrasonographic examination of growth-restricted fetuses.