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Factor V Leiden ,Prothrombin and Methylenetethrahydrofolatereductase gene mutation in patients with Preeclamsia,Intrauterine Growth Restriction and Placental abruption

Topics: Miscellaneous
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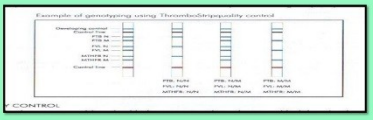
BACKGROUND: Mutation of the genes for synthesis of Factor V Leiden ,Prothrombin and MTHFR as a type of inherited thrombophilias have an unfourable influence in pregnancy complicated with preeclamsia,IUGR and placental abruption.

AIM: The aim of study is to explore the presence of above mentioned inherited thrombophilias and its statistical significance and distribution among the complicated and normal pregnancy and relative risk for carriers of mutation to develop preeclampsia,IUGR and placental abruption.

MATERIAL AND METHODS: Prospective cohort study is implemented at University Clinic for Obstetric and Gynecology in Skopje.The study included **109** delivered patients:**40 with preeclapmsia**,**22 with IUGR** **17 with placental abruption** and **30 as control group** with normal pregnancy.

For detection of these point mutations, ***ThromboStrip-Opegen, Operon(molecular and imuno diagnostic)- QIAGEN*** test was used.From each patient ,3 ml od venous blood in EDTA epruvete, has been taken. Writen statement for patient consent was obtained.

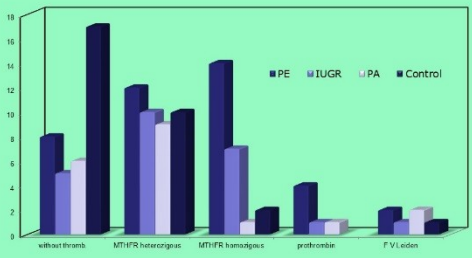
The possible results were: normal, heterozygous and homozygous for mutation.



Statistical methods:SPSS V20 was used for numeric and attributive paramatetars.Standard descriptive and analytical bivariant and multivariate methods were used.Statistical significans amnong attributive parametars was deteminated with Chi-square test,and numerical parameters with Student's T test.

RESULTS: The most frequent mutations were **:**In the group with *preeclampsia*, 35% were MTHFR homozigous,in *IUGR* group – MTHFR were heterozigous 45%,in group with *Placental abruption*- 52,9% MTHFR heterozigous, and in the control groupwithout thrombophilia 56.7%.There were combinated thrombophilias in 3 patients. There aren`t statistical significance in presence of thrombophilias between groups($p>0.05$).Statistical significance ($p>0.05$) was found among carriers of MTHFR homozygous in preeclampsia and group with placental abruption and control group.(table and graph. 1)

groups	Preeclamsia 40		IUGR 22		Placental Abruption 17		Control group 30	
Type of thrombophylia	No	(%)	No	(%)	No	(%)	No	(%)
Without thrombophylia	8	20.0	5	22.7	6	35.3	17	56.7
MTHFR heterozigous	12	30.0	10	45.5	9	52.9	10	33.3
MTHFR homozigous	14	35.0	7	31.8	1	5.9	2	6.7
Prothrombin heterozigous	4	10.0	1	4.5	1	5.9	0	
Factor V Liden heterpzigous	2	5.0	1	4.5	2	11.8	1	3.3



Graphic 1

Table 1.Distribution of patients :combination of clinical entites and presence of thrombophilia

Relative risk in IUGR group with MTHFR homozygous was 5.54(1.37<RR<22.4). Relative risk in placental abruption for Factor V Leiden heterozygous was 4.50(0.47<RR<42.75). Coefficient of determination(R^2) is 0.075, shown that all independent variables together have an influence in variability of thrombophilias with 7.5%,unless 92.5% belong to influence of other factors. (table 2)

*statistical significant(importance)

Table.2 Multiple regresion analysis for thrombophylias

INDEPENDENT VARIABLES AGE,PERSONAL AND FAMILIAR ANAMESIS	R = 0,274 R^2 = 0,075 F = 2.841 P = 0,041441		
	Beta	t - test	p - level
age	-0.062399	-0.638054	0.524828
Poor obstetric background	-0.040180	-0.416275	0.678059
Positive familial anamnesis	0.272288	2.862150	0.005080

CONCLUSION: The presence of mutation MTHFR homozygous could increased the risk for develop of IUGR and mutation of Factor V Leiden for placental abruption.Coinheritance of two or more mutation, further increases the risk for these complications.The clinical expression of inherited thrombophilias is an interreaction between gene mutation and actually existence acquired risk factors. Further investigation with more patients are necessary,if there is a need for selective screening for inherited thrombophilia.Thrombophilias still remain field for further investiogations because a lot of studies shown, that clinical expression in patients with thrombophilias is an interreaction between gene-age- environmental circumstances.It is important because the doctor should be offered screening for the patients with riscs to develop complications in pregnancy .

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KEY WORDS:inherited thrombophilia,preeclampsia,IUGR,placental abruption