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ANALYSIS OF RISK FACTORS AND BLOOD BIOMARKERS OF ALLERGY DURING PREGNANCY IN FEMALES

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Abstract:

Introduction: *The role of maternal exposure to environmental contaminants on the developing fetal immune system is not clear. It has been suggested that fetal exposure to some environmental contaminants can promote life-long changes to the developing immune system that would have an effect on immune system responses resulting in an increased risk of an allergic phenotype in childhood and beyond.* ***Aim of the study:*** *The basic aim of the study is to find the risk factors and blood biomarkers of allergy during pregnancy in females.* ***Methodology of the study:*** *This cross-sectional study was conducted at Central Park Medical College, during March 2019 to October 2019. For this purpose, we select the 100 pregnant women which was at different stages of pregnancy. Then we collect the blood samples of each women for further biochemical analysis and antioxidants analysis. We designed a study to associate maternal BMI and GWG with pregnancy outcomes in local women of Pakistan with biomarkers of allergy and antioxidants and examine whether these are predictive of adverse perinatal outcomes in Pakistani population.* ***Result:*** *Serum allergy biomarkers shows that in pregnancy women become more sensitive to allergy as compared to normal condition. The levels of inflammatory biomarkers in blood is at increased level as compared to normal women. The levels of IL-6 and IL-8 was significantly higher in pregnant women.* ***Conclusion:*** *It is concluded that positive, statistically significant association between maternal allergy biomarkers exposure and elevated cord blood concentrations of the epithelial cell derived cytokines TSLP and IL-6 and 8.*

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INTRODUCTION:

The role of maternal exposure to environmental contaminants on the developing fetal immune system is not clear. It has been suggested that fetal exposure to some environmental contaminants can promote life-long changes to the developing immune system that would have an effect on immune system responses resulting in an increased risk of an allergic phenotype in childhood and beyond. Pregnant ladies constitute a critical subpopulation with a hoisted danger of obesity because of over the top weight pick up[1]. It has been demonstrated that maternal obesity and inordinate gestational weight pick up (GWG) are related with unfriendly obstetric and neonatal results including unconstrained fetus removal, gestational diabetes mellitus (GDM), cesarean conveyance, preeclampsia, neonatal macrosomia, and agent and soporific entanglements[2].

To help ideal pregnancy results, the World Health Organization (WHO) prescribed that the Institute of Medicine (IOM) create rules for weight pick up amid pregnancy. In any case, the IOM suggestions on gestational weight pick up depend on pre-pregnancy BMI without mulling over various race/ethnicity, age, or existing pregnancy inconveniences[3]. Ladies with GDM are at expanded danger of maternal and fetal intricacies including preeclampsia, preterm birth, cesarean segment and conveyance of huge for gestational age (LGA) newborn children[4]. As obesity and GDM are much of the time comorbid conditions, obesity and over the top gestational weight pick up may intensify these dangers in GDM. Since fat is an endocrine organ and collaborates with diabetes, it is conceivable that the expanded amassing of fat differentially affects perinatal results for ladies with GDM[5].

Aim of the study

The basic aim of the study is to find the risk factors and blood biomarkers of allergy during pregnancy in females.

METHODOLOGY OF THE STUDY:

This cross-sectional study was conducted at Central Park Medical College, during March 2019 to October 2019. For this purpose, we select the 100 pregnant women which was at different stages of pregnancy. Then we collect the blood samples of each women for further biochemical analysis and antioxidants analysis. We designed a study to associate maternal BMI and GWG with pregnancy outcomes in local women of Pakistan with biomarkers of allergy and antioxidants and examine whether these are predictive of adverse perinatal outcomes in Pakistani population.

Statistical analysis

Student's t-test was performed to evaluate the differences in roughness between group P and S. Two-way ANOVA was performed to study the contributions. A chi-square test was used to examine the difference in the distribution of the fracture modes (SPSS 19.0 for Windows, SPSS Inc., USA).

RESULT:

Serum allergy biomarkers shows that in pregnancy women become more sensitive to allergy as compared to normal condition. The levels of inflammatory biomarkers in blood is at increased level as compared to normal women. The levels of IL-6 and IL-8 was significantly higher in pregnant women.

Table 01: Serum Allergy biomarkers analysis in pregnant women

Outcome (%)b	*β*(%)	95% CI	*P*	*β* (%)	95% CI	*P*
hsCRP	3	1 to 5	<0.01	3	1 to 5	<0.01
SAA	2	1 to 4	<0.01	3	1 to 4	<0.001
IL-8	−2	−3 to −0	0.02	−2	−4 to −1	<0.01
IL-6	0	−1 to 2	0.36	0	−1 to 1	0.71
Il-1β	−1	−2 to 1	0.25	−1	−3 to 0	0.16
TNF-α	1	−0 to 1	0.19	1	−0 to 2	0.11

DISCUSSION:

We observed that maternal NO_2 exposure was associated with significantly increased odds of high cord blood IL-33 and TSLP concentrations among girls[6]. This finding was consistent in analyses of categorical and continuous exposure variables and persisted whether IL-33 and TSLP were analyzed individually or jointly. This association was not, however, observed in analyses wherein TSLP and IL-33 were dichotomized at the LOD. In light of literature suggesting that IL-33 and TSLP are cross-regulated and that IL-33 can induce TSLP production, our finding of an association between NO_2 and two cytokines together is not surprising[7]. Although largely produced by hepatocytes, hsCRP and SAA are also produced by adipocytes. IL-8 is, however, a chemokine produced by a variety of tissue and blood cells. IL-8 induces chemotaxis in target cells and phagocytosis at the site of inflammation. There is extensive evidence of a relation between weight gain and low-grade inflammation in the nongravid population[8]. In line

with our results, weight gain during pregnancy has been related to maternal hsCRP levels in some, but not all, previous reports. It is generally accepted that inflammation associated with weight gain is related to secretions of proinflammatory biomarkers from adipose tissue[9]. However, there are some suggestions that low-grade inflammation may also precede weight gain, possibly by promoting adipose accumulation or indirectly through disturbances of the gut microbiota, which may influence metabolic pathways by modulating inflammation, satiety control, and extraction of calories[10].

CONCLUSION:

It is concluded that positive, statistically significant association between maternal allergy biomarkers exposure and elevated cord blood concentrations of the epithelial cell derived cytokines TSLP and IL-6 and 8. Our results indicate that both GWG and diet are related to inflammatory status of pregnant women.

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