

A Study on Evaluation of Oxidative Stress in Association with Hypoxia Inducible Factor -1 α Polymorphisms in Pre-Eclampsia

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Abstract:

Background: The prevalence rate of preeclampsia in India in isolation is stipulated at 8-10 percent amongst pregnant mothers. It normally occurs between the second part of the pregnancy. In preeclampsia, oxidative stress and inflammatory condition play a significant role in relation to involvement of NADPH oxidase, maternal, endothelial and leukocyte activation. Present study was aimed to evaluate oxidative stress in connection with pre-eclampsia and hypoxia-inducible factor-1 α polymorphisms.

Material and Methods: The current study was a single-center, prospective, comparative study of pregnant women with preeclampsia after the 20th week of gestation.

Results: The prevalence of CC genotype is higher in normal pregnant (36.50%) than in PE (11.11%) and nonpregnant women (25.39%). The prevalence of the CT genotype was higher in normal gestating women (42.85%) and non-gestating women (46.39%) than in PE (34.92%) and the TT genotype was also higher in PE (53.96%) than in normal pregnant women (42.85%) and Non-pregnant women (46.39%). In non-pregnant women and in normal pregnant women, the frequency of the C allele was more (80.95% and 57.67%, respectively). However, lower in PE and the frequency of the T allele was higher in PE lower in normal pregnant women and nonpregnant women. The chi-square p-value of genotypes (CC, CT, and TT) and alleles (C, T) were highly significant. The association of Overall PE (OR= 13.91), sever PE (OR=13.22) and mild PE (OR= 15.65) with CC seen in the recessive model. In the dominant model, the connection was less with moderate form PE (OR = 2.24) compared to severe PE

(OR = 2.931) and with PE in general (OR = 3.29). The relationship between intermediate form PE (OR = 2.24) and serious PE (OR = 2.931) and PE in general (OR = 3.29) was less in the dominant model. The increases in all oxidative stress markers were also significant in the preeclampsia group associated to the normotensive gestating women and non-gestating women. Conclusion: The current study found that in the dominant model, placental HIF1 α gene polymorphism is associated with PE, but not maternal polymorphism.

Keywords:

Maternal HIF1 α gene, gene polymorphism, preeclampsia, oxidative stress, polymorphisms.