

Association of vitamin D deficiency and vitamin D receptor (VDR) gene single-nucleotide polymorphism (rs7975232) with risk of preeclampsia.

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ABSTRACT

BACKGROUND: Preeclampsia has a multifactorial-yet-elusive etiology. Recent reports suggest a link between preeclampsia and vitamin D (VD) metabolic axis. Genetic variations like single-nucleotide polymorphisms (SNPs) of vitamin D receptor (VDR) gene can alter the metabolic role of VD, which have been shown by several genetic association studies. However, there is discordance among these studies.

OBJECTIVE: The current study aimed to investigate the association of VDR gene polymorphism (Apa1) and VD deficiency with risk of developing preeclampsia.

PATIENTS AND METHOD: In this case-control study, 40 preeclamptic and 40 normotensive pregnant women were compared for VD status and VDR gene polymorphism. Serum 25-hydroxyvitamin-D [25(OH) D] level was determined by enzyme-linked immunosorbent assay (ELISA) and VDR gene polymorphism Apa1 was analyzed by Allele specific polymerase chain reaction (AS-PCR) using sequence specific primers.

RESULTS: Serum levels of 25(OH) D were very low but comparable in both preeclamptic and normotensive pregnant women. The difference between the two groups were not statistically significant ($p = .423$). VDR gene polymorphism Apa1 (rs7975232) was found not to have significant association with the risk of developing preeclampsia. The frequencies of wild genotype (GG) in preeclamptic and normotensive women were 27.5% and 22.5% respectively. A total of 25% of preeclamptic women had mutant homozygous genotype (TT) and 17.5% of normotensive women had mutant homozygous genotype. The frequency of mutant heterozygous genotype (GT) in preeclamptic patients was 47.5% and in normotensive women was 60%. The variation of wild and mutant genotypes between the two groups was not statistically significant ($p > .05$).

CONCLUSION: This study showed that VDR gene polymorphism (Apa1) and VD deficiency are not associated with the risk of preeclampsia.