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SciTechnol

Androl Gynecol: Curr Res 2018, Volume 6
DOI: 10.4172/2327-4360-C1-009

World Congress on
Gynecology, Obstetrics, Nursing & Healthcare
April 16-17, 2018 Dubai, UAE

VEGF A2578C polymorphism and serum soluble VEGFR1 levels in preeclampsia

Feriha Fatima
Liaquat University of Medical & Health Sciences, Pakistan

Background & Aim: Vascular Endothelial Growth Factor (VEGF) gene is protein encoding gene involved in angiogenesis, vasculogenesis, cell migration and endothelial cell proliferation. It has been found that its expression is up-regulated in certain tumors. VEGF A2578C (rs699947) is functional polymorphism having influence on promoter function and regulates expression. VEGF A2578C denotes point mutation transitions of A/C at nucleotide position −2578 that is taken relative to the translation start site. It has been studied in association with various disorders including preeclampsia however it has not been studied in Pakistani pregnant women previously. Present study aimed to find out genotypes of VEGF A2578C and serum levels of soluble VEGFR1 in preeclamptic women in comparison with normal pregnant women.

Methodology: We conducted case control study at Liaquat University of Medical and Health Sciences (LUMHS) Jamshoro. Study subjects included 80 preeclamptic women and 80 matched gestational age normal pregnant women. Venous blood sample was collected for serum and DNA extraction. VEGF A2578C polymorphism genotyping was carried out by tetra-primer ARMS-PCR method (designed and optimized at molecular biology and genetic department, LUMHS). Serum soluble VEGFR1 was determined by ELISA method.

Results: The homozygous CC genotype was found in 30% of cases and 25% of control group, heterozygous AC genotype 47.5% among cases and 56.25% among controls whereas homozygous AA genotype distribution was 22.5% among cases and 18.75% among controls. Serum soluble VEGFR1 levels were significantly higher among cases as compared to controls.

Conclusion & Significance: We did not find significant association of VEGF A2578C polymorphism in development of preeclampsia in our population. However raised serum soluble VEGFR1 levels in preeclampsia may direct alteration in levels of angiogenic and anti-angiogenic factors in disorder.

ferihafatima@yahoo.com