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Patients with increase in the level of vascular endothelial factor have a positive history of ovarian hyperstimulation syndrome and polycystic ovary syndrome

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The ovarian hyperstimulation syndrome (OHSS) is a serious and potentially life-threatening physiologic complication, L classically encountered in patients who undergo controlled ovarian hyperstimulation (COH) cycles. OHSS is a rare iatrogenic complication of ovarian stimulation occurring during the luteal phase or during early pregnancy. It is characterized by enlargement of the ovaries, fluid retention, and weight gain. Ovarian hyperstimulation syndrome is self-limiting and will undergo gradual resolution with time. The pathophysiology of OHSS is characterized by increased capillary permeability, leading to leakage of fluid from the vascular compartment, with third-space fluid accumulation and intravascular dehydration. Young age, an explosive response to gonadotropin stimulation evident withrapid increase of serum E2 levels, development of multiple follicles (<20) during stimulation and the presence of polycystic ovary syndrome have been described as risk factors for the development of the syndrome in IVF patients. There is evidence that several other factors such as vascular endothelial growth factor may play a modulatory role on ovarian physiology and in the pathogenesis of ovarian hyperstimulation syndrome. The aim of this study was to measure the Vascular Endothelial Growth Factor (VEGF) which is a homodimeric 34 - 42 kDa, heparin binding glycoprotein with potent angiogenic, mitogenic and vascular permeability-enhancing activities specific for endothelial cells. The serum was extracted from 3 ml blood from 38 patients, control group is healthy patients (n=8) visiting Dr. Sameer Abbas IVF clinic, H-OHSS group is patients with Polycystic ovarian syndrome (PCOS) visiting in vitro fertilization (IVF) clinic and have a positive history of OHSS (n=10) and PCOS group is patients with PCOS visiting IVF clinic and have no history of OHSS (n=20). The level of VEGF was measured by using enzyme-linked immunosorbent assay (ELISA) technique. The observed differences in the VEGF between the different groups were statistically significant (P<0.05). It was found that VEGF level in H-OHSS and PCOs groups were statistically higher when they were matched control group. The VEGF levels were markedly the highest among H-OHSS group compared to the control group. The levels were almost seven times higher among H-OHSS patients (718.186±421.241pg/ml) compared to normal control (86.149±73.825pg/ml). The observed differences in the VEGF between the different groups were statistically significant (P<0.05). The VEGF levels were higher among the PCOs group compared to the control group. The levels were almost three times higher among PCOs patients (350.806±252.478pg/ml) compared to normal control (86.149±73.825pg/ml). The observed differences in the VEGF between the different groups were statistically significant (P<0.05). The levels of VEGF were almost two times higher among H-OHSS group (718.186±421.241pg/ml) compared to PCOs group (350.806±252.478pg/ml). The observed differences in the VEGF between the different groups were not statistically significant (P=0.0577). The correlations between VEGF, anthropometric measurement, metabolic and hormones variables were performed in the three groups. In H-OHSS group, only a negative correlation was significant between the testosterone level and the weight of patients. In PCOS group, the level of VEGF was correlated significantly and negatively with estradiol (E2) level. A negative significant correlation was found between the level of E2 and the age, and between E2 and the weight of patients. Also the testosterone level was correlated significantly and positively with the level of FSH.

Conclusion: Serum VEGF concentrations may predict OHSS occurrence.

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