

The effect of serum and follicular fluid hypoxia inducible factor 1 α on invitro fertilization outcomes in patients with polycystic ovary syndrome

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Abstract

Objective: To investigate serum and follicular fluid (FF) HIF-1 α levels in nonobese, nonhyperandrogenic patients with polycystic ovary syndrome (PCOS) undergoing in vitro fertilization (IVF), in addition to IVF outcomes.

Materials and Methods: A prospective sequential cross-sectional study carried at a Research and Education Hospital. In total, 160 patients undergoing IVF treatment were included in the study: 80 patients diagnosed with PCOS according to the Rotterdam criteria (group I, study) and 80 patients with the etiology of male factor infertility (group II, control).

Results: There were statistically significant between-group differences in serum estradiol (E₂) levels on the day of hCG administration ($2,377.00 \pm 733.23$ versus $1,931.3 \pm 1,010.69$), the total gonadotropin dose required ($2,000.63 \pm 1,051.87$ versus $1,134.69 \pm 286.45$), and the total number of retrieved oocytes (8.60 ± 2.06 versus 11.05 ± 4.39) ($P < 0.05$). There was also a statistically significant between-group difference in serum and FF HIF-1 α levels on the day of oocyte retrieval ($0.21 + 0.06$ versus $0.17 + 0.04$, $P = 0.001$; $0.09 + 0.05$ versus $0.06 + 0.03$ $P = 0.007$; respectively).

Conclusions: In a selected population of nonobese, nonhyperandrogenic PCOS patients, there was a significant difference in HIF-1 α levels of the PCOS group versus those of the control group. Further studies are needed to determine the effects of HIF-1 α in women with PCOS and to develop a new marker to monitor treatment outcomes.