Effects of Ovulation Induction and Ovarian Puncture on CRP Levels in Subjects Undergoing IVF/ICSI

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Abstract

Introduction: Controlled ovarian hyperstimulation (COH) is an important factor in IVF/ICSI success rates. CRP is a serological marker for systemic inflammation and it increases following hormonal stimulation. Probable inflammation following ovulation induction and ovarian puncture, in regards to CRP changes, might affect the outcomes of IVF programs. The present study was conducted to determine the effects of ovulation induction and puncture of ovaries on serum CRP levels in IVF/ICSI candidates.

Materials and Methods: This observational, descriptive-analytical study was performed at Avicenna Infertility Clinic during 2006 – 2007. COH was performed on 70 infertile patients who were candidates for IVF/ICSI, using standard long GnRH agonist protocol. Peripheral blood was drawn four times during the treatment cycle on the first day of stimulation and the days of HCG injection, ovary puncture, and embryo transfer. Non-serosanguinous follicular fluid samples were taken at the time of ovum pick up from each individual too. CRP levels were measured in follicular fluid and serum using competitive ELISA methods.

Results: Serum CRP levels increased along with the stimulation cycle, from the first day of the procedure to the day of HCG injection but significant increases were seen in 82.2% of the cases following ovary puncture (respectively, 3.97±1.00*μg/ml,* 5.54±2.26*μg/ml* and 6.61±4.16*μg/ml*; $p<0.001$). There were no significant correlations between serum estradiol and CRP levels.

Conclusion: Controlled ovarian hyperstimulation and ovarian puncture potentiate systemic inflammation. Serum CRP levels increase during ovulation induction cycle and also after HCG injection, but not in all patients undergoing ovarian puncture. These inflammatory reactions may affect IVF/ICSI outcomes.

Key Words: Assisted reproductive techniques, Controlled ovarian hyperstimulation, C-reactive protein, Infertility, Inflammation, Intracytoplasmic sperm injection, In-vitro fertilization, Ovarian puncture.

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