Impact of adenomyosis in endometriotic patients undergoing in vitro fertilization: comparison of ovulation induction protocols

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Introduction: Before planning an in vitro fertilization (IVF) cycle, a thorough assessment of the women’s hormone profile, ovarian reserve and the presence of benign gynaecological pathologies infertility-related (endometriosis and/or adenomyosis) is essential to aid the decision on the appropriate protocol for controlled ovarian hyperstimulation (COH). The aim of this study was to compare the in vitro fertilization outcomes of long gonadotropin- releasing hormone agonist (GnRH-a) and GnRH antagonists (GnRH-ant) protocols in endometriotic patients in presence of adenomyosis.

Materials and Methods: We conducted a retrospective study nested in an observational cohort of 720 consecutive IVF-ICSI cycles in a tertiary care center between June 2005 and February 2013. Diagnosis of endometriosis was histologically proven in women who had past surgery (n=145 - 71.1%), or based on published imaging criteria using transvaginal sonography and magnetic resonance imaging. A total of 204 IVF cycles in 204 patients with endometriosis (Superficial endometriosis n=8; Endometrioma n=29; Deep infiltrating endometriosis n=167) and adenomyosis were allocated to two groups: those who had ovarian stimulation with a long GnRH-a protocol (n=117), and those who had ovarian stimulation with a GnRH-ant protocol (n=87).

Results: There were no significant differences in basal characteristics of patients (age, BMI, gravidity, parity, primary or secondary infertility and length of infertility). No significant evidences were observed in ovarian reserve parameters, in terms of: antral follicular count (AFC) and antimullerian hormone (AMH, ng/mL). The endometriosis phenotypes were similar in both groups. Outcomes of COH with both GnRH-a and GnRH-ant were similar in two groups (total dose of injected gonadotropin UI, n. of oocytes retrieved, n. of embryos obtained, n. of embryo transfer, implantation rate, and pregnancy rate/cycle).

The miscarriage rate was statistically significantly higher in the GnRH-a protocol (22.6 % vs 50.0 %, p<0.05).

Conclusion: The existence of associated adenomyosis in endometriosis affected women has a negative impact on the outcome of IVF cycles. Prolonged downregulation with GnRH-a prior to ovarian stimulation for IVF is beneficial to achieving pregnancy. This COH protocol can improve the uterine microenvironment and consequently can reduce miscarriage rate following IVF in infertile endometriotic patients with adenomyosis.

Mots clefs : Adenomyosis, endometriosis, ovulation induction protocols, in vitro fertilization, miscarriage

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