

Influence of Gynaecologic Adnexal Surgeries on Subsequent Ovarian Function and *In Vitro* Fertilization Treatment Outcome

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Objective To investigate the correlation between gynaecologic adnexal surgery history and pregnancy outcome of in vitro fertilization (IVF) treatment.

Methods A total of 810 women who were proceeded 810 IVF treatment cycles from October 2009 to March 2011 were recruited to this retrospective study, based on whether they had history of gynaecologic adnexal surgeries or not. Among 810 women, 587 women had no gynaecologic adnexal surgeries (group A), 223 women had gynaecologic adnexal surgeries (group B). Additionally, the group B was further divided into 4 subgroups based on their different gynaecologic adnexal surgery histories, such as tubal conservative surgery (group Ba1), unilateral salpingectomy (group Ba2), ovarian cyst ablation (group Bb1) and unilateral adnexal resection (group Bb2). The basal levels of FSH, antral follicle count (AFC), clinical pregnancy rate (CPR), embryos implantation rates (IR) and live birth rates (LBR) were compared.

Results The levels of FSH and AFC were significantly different between groups A and B, respectively. Therefore, CPR, IR and LBR were significantly lower ($P < 0.05$) in group B (30.9%, 17.8% and 25.1%) compared with group A (39.9%, 22.8% and 32.4%). Meanwhile, there was no significant difference between the patients who had tubal conservation surgery (group Ba1) and who had unilateral salpingectomy (group Ba2). However, in contrast to unilateral adnexectomy, ovarian cystectomy surgery influenced

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FSH and AFC significant, even for the number of oocyte retrieved, but did not affect the IVF treatment outcome.

Conclusion *The previous history of gynaecologic adnexal surgeries may affect the subsequent ovarian function and also IVF outcomes. As for different operation methods, between tubal conservation surgery and unilateral salpingectomy, the IVF outcomes were not significantly different. The same result we found in different ovarian operation groups.*

Key words: gynaecologic adnexal surgery; oocyte function; clinical pregnancy rate (CPR); implantation rate (IR); live birth rate (LBR)

Gamete quality is the principal factor that influences the consequence of *in vitro* fertilization (IVF). Surgery on the ovary may affect subsequent ovarian function, especially the outcome of ovarian stimulation and IVF. The adnexae includes ovary and fallopian tube. Damage to the fallopian tubes is a common cause of women having difficulty conceiving. Hydrosalpinges are relatively frequent in women with tubal disease infertility who are undergoing IVF. The prevalence of hydrosalpinges can range between 10% when diagnosed by transvaginal ultrasound, and 30% when either hysterosalpingography (HSG) or laparoscopy is used. In the majority of women with tubal ectopic pregnancy, laparoscopic surgery is the treatment of first choice^[1]. So far, no consensus has been reached whether salpingotomy or salpingectomy leads to better fertility outcome^[2]. However, the effects of salpingectomy on ovarian function remain unclear. Results of previous studies^[2,3] in women undergoing IVF after laparoscopic salpingectomy have been mixed. Some investigators demonstrated^[3,4] salpingectomy reduced number of dominant follicles and oocytes in the ipsilateral ovary, and reduced maximal levels of E₂, as well as decreased antral follicle count, thus influence IVF outcome negatively, whereas other study showed salpingotomy does not significantly improve fertility prospects compared with salpingectomy^[5].

As an approach for ovarian cysts, laparoscopy and laparotomy are both considered. Laparoscopy is used often owing to advantages including a shorter hospital stay and patient recovery, fewer adhesions, and less pain as compared with laparotomy. Thus, ovarian stripping remains the most frequently performed surgical technique for the treatment of ovarian cysts. A chief concern about the excision of ovarian cysts is the negative effect on ovarian reserve owing to follicle loss^[4].

If surgery is undertaken, various techniques have been advocated to try to enhance the pregnancy rate. These include the use of magnification including microsurgical techniques, laparoscopic surgery, laser or electrodiathermy to minimise blood loss and scarring and positioning a prosthesis around the tube.

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