ORIGINAL ARTICLE: ASSISTED REPRODUCTION

Effect of treatment of a previous ectopic pregnancy on in vitro fertilization–intracytoplasmic sperm injection outcomes: a retrospective cohort study

Zhen Xu, M.D., Lei Yan, M.D., Ph.D., Wen Liu, M.D., Xinxin Xu, M.D., Miao Li, M.D., Lingling Ding, M.D., Jinlong Ma, M.D., Ph.D., and Zi-Jiang Chen, M.D., Ph.D.

Center for Reproductive Medicine, Reproductive Hospital Affiliated to Shandong University, Jinan; National Research Center for Assisted Reproductive Technology and Reproductive Genetics, Jinan; Key Laboratory for Reproductive Endocrinology of Ministry of Education, Jinan; Shandong Provincial Key Laboratory of Reproductive Medicine, Jinan, People's Republic of China

Objective: To evaluate the influence of previous ectopic pregnancies (EP) and different EP treatment methods on in vitro fertilization–intracytoplasmic sperm injection (IVF-ICSI) outcomes.
Design: Retrospective cohort study.
Setting: University-based reproductive medicine center.
Patient(s): Women undergoing 51,268 fresh cycles of IVF-ICSI.
Intervention(s): In women who had had an EP before the IVF treatment and women who were diagnosed with fallopian disease without an EP (control group), division into three treatment subgroups: subgroup 1, conservative treatment; subgroup 2, salpingostomy; and subgroup 3 salpingectomy.
Main Outcome Measure(s): Estimates of IVF-ICSI outcome and ovarian function based on number of antral follicles and rates of implantation, EP, clinical pregnancy, and delivery.
Result(s): For the experimental group and the control group, there were no statistically significant differences in the rates of implantation, clinical pregnancy, or delivery. However, the risk of recurrent EP was statistically significantly higher in the experimental group compared with the control group. There were no statistically significant differences in IVF-ICSI outcomes between the three treatment subgroups in terms of the basic antral follicle number or the dominant antral follicle numbers (>1.0 cm) after surgical treatment of EP.
Conclusion(s): Our results suggest that women with a prior history of EP have a higher recurrence risk of EP after IVF in comparison with women with no history of EP. Previous EP has no effect on the main IVF-ICSI outcomes. For the treatment of EP, salpingostomy and salpingectomy do not statistically significantly affect ovarian function. (Fertil Steril® 2015;■:■–■. ©2015 by American Society for Reproductive Medicine.)
Key Words: Cohort study, ectopic pregnancy, in vitro fertilization, laparoscopy

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Reprint requests: Jinlong Ma, M.D., Ph.D., Center for Reproductive Medicine, Shandong Provincial Hospital Affiliated to Shandong University, 324 Jingwu Road, Jinan 250021, People's Republic of China (E-mail: chenzijiang@hotmail.com).

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Ectopic pregnancy (EP) occurs when the fertilized ovum implants in a site other than the endometrial cavity. It is unclear whether there are molecular or histologic changes that can predispose a woman to EP. Although the exact etiology of EP is unknown, current evidence suggests that EP is caused by a combination of impaired embryotubal transport in the fallopian tube

and alterations in the tubal environment (1, 2). The incidence of this condition in developed countries is 1%~2% and is slightly lower in developing countries (3). The incidence of EP has been on the rise accompanying increased infertility and use of assisted reproductive technologies (ART) (3, 4).

The management of EP can be divided into expectant management versus medical or surgical intervention. Surgical management includes salpingectomy, a procedure in which the affected fallopian tube is removed, and salpingostomy, which is defined as surgical removal of the EP from the fallopian tube via an incision in the tube that preserves the affected fallopian tube. With surgical management, the trend has shifted toward the use of the more conservative procedure, namely, salpingostomy, in the majority of cases (5). However, a well-known study has shown that salpingostomy does not significantly improve fertility prospects: it may better protect future fertility, but it is associated with an increased risk of EP recurrence compared with salpingectomy (6, 7).

Previous studies concluded that EP was itself a risk factor for recurrent EP. Shaw et al. (1) showed that women with a previous history of EP had an increased risk of recurrence. Malak et al. (8) concluded that a previous EP usually contributed to the risk of EP in in vitro fertilization (IVF) procedures. Furthermore, studies have reported that the incidence of EP after infertility treatment, including IVF and intracytoplasmic sperm injection (ICSI), was much higher than in spontaneous pregnancies (9). However, few studies have investigated both the effect and the recurrence incidence of EP after IVF-ICSI (10). Ye et al. (11) reported that salpingectomy was associated with a decreased ovarian reserve, as determined by serum antimüllerian hormone (AMH) levels. However, few studies have investigated the affect of the three different EP treatments on the main IVF-ICSI outcomes or their influence on ovarian function.

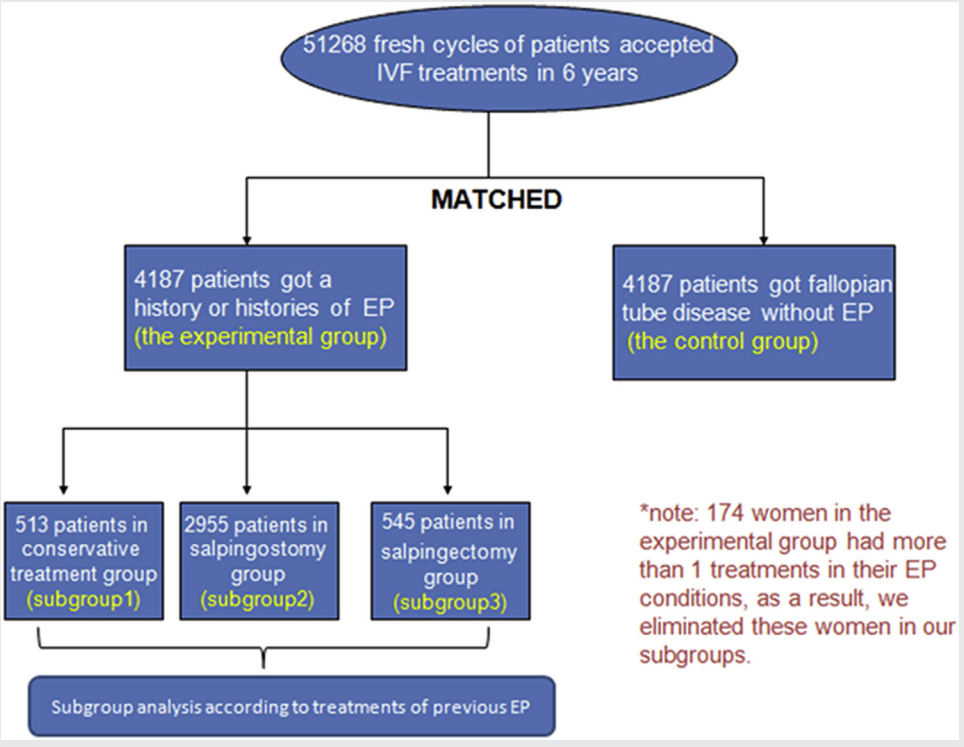
We investigated the relationship between EP and the main IVF-ICSI outcomes, including the delivery rate. We also analyzed the recurrence risk of EP in infertile women with a history of EP who were undergoing IVF-ICSI, as well as the effect of the different EP treatments on ovarian function.

MATERIALS AND METHODS

Study Design

We performed this retrospective cohort study at the Center for Reproductive Medicine, Reproductive Hospital Affiliated to Shandong University, and collected electronic records of women who underwent IVF-ICSI treatments from January 2009 to December 2014. A total of 51,268 fresh cycles were conducted, which comprised 4,187 patients in the experimental group and 4,187 patients in the control group. The method of searching and group divisions are shown in Figure 1.

FIGURE 1



Database searching pathway and group divisions.

Xu. Ectopic pregnancy and IVF-ICSI. Fertil Steril 2015.