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ORIGINAL RESEARCH

The outcome of IVF in advanced endometriosis with previous surgery: A case-controlled study

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Abstract
Background: To assess the outcome of IVF in advanced endometriosis with previous surgery.
Materials & methods:A total of 30 patients with the diagnosis of advanced endometriosis underwent IVF were enrolled as study group. Another set 30 ages matched subjects were included as control group. The diagnosis of advanced endometriosis was confirmed on clinical and ultrasound basis. All patients underwent previous laparoscopic or open surgical procedures for the treatment of endometriosis and pelvic adhesiolysis. Outcome was recorded in all the subjects. All the results were recorded and analysed using SPSS software.
Results: Mean withdrawal rate was 30 percent among subjects of study group while among control group subjects, it was 3.33 percent. Mean implantation rate among subjects of study group and control group was 10 percent and 30 percent respectively. Significant better results were obtained control group.
Conclusion: Unfavourable outcome of IVF is seen among patients with advanced endometriosis with previous surgery.
Key words: Endometriosis, IVF, Surgery.

Introduction

Endometriosis is a chronic gynaecologic disease characterized by the development and presence of histological elements like endometrial glands and stroma in anatomical positions and organs outside of the uterine cavity. The main clinical manifestations of the disease are chronic pelvic pain and impaired fertility. It is defined as the presence of endometrial glands and stroma like lesions outside of the uterus. The lesions can be peritoneal lesions, superficial implants or cysts on the ovary, or deep infiltrating disease. While there is no definitive etiology of endometriosis, there are several hypotheses regarding how endometriosis lesions develop.[1-3]

Techniques that involve manipulation of oocytes outside the body are termed assisted reproductive technology (ART) with in vitro fertilization (IVF) as the most common form. [4, 5]The term ‘in vitro’ means outside a living organism as oocytes mature in vivo in the ovary and embryos develop into pregnancy in the uterus, but the oocytes are fertilized in a petri dish.[6,7]hence; the present study was conducted for assessing the outcome of IVF in advanced endometriosis with previous surgery.

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Materials & methods

The present study was conducted for assessing the outcome of IVF in advanced endometriosis with previous surgery. The present study was conducted within time period of September 2021 to Feb 2022. A total of 30 patients with the diagnosis of advanced endometriosis underwent IVF were enrolled as study group. Another set 30 age matched subjects were included as control group. The diagnosis of advanced endometriosis was confirmed on clinical and ultrasound basis. All patients underwent previous laparoscopic or open surgical procedures for the treatment of endometriosis and pelvic adhesiolysis. Our primary end points were cancellation rate, number of oocytes retrieved, number of embryos transferred, and the clinical pregnancy rate. Outcome was recorded in all the subjects. All the results were recorded and analysed using SPSS software.

Results

Mean age of the subjects of the study group and control group was 32.6 years and 33.9 years. Mean infertility duration was 6.9 years and 7.1 years respectively.Mean hMG among subjects of study group and control group was 12.3 days and 11.8 days respectively. Mean withdrawal rate was 30 percent among subjects of study group while among control group subjects, it was 3.33 percent. Mean implantation rate among subjects of study group and control group was 10 percent and 30 percent respectively. Significant better results were obtained control group.

Table 1: Demographic variable

Variable	Study group	Control group
Meana age (years)	32.6	33.9
Mean infertility duration (years)	6.9	7.1

Table 2: Outcome variables

Variable	Study group	Control group	p- value
Mean hMG days	12.3	11.8	0.12
Withdrawal rate (%)	30	3.33	0.00*
Mean number of oocytes retrieved per started cycle	5.3	11.8	0.01*
Fertilization rate	53.33	56.67	0.81
Mean number of embryos transferred	3.2	4.1	0.03*
Implantation rate	10	30	0.01*
Pregnancy rate per embryo transfer	23.3	46.6	0.02*

Discussion

Endometriosis is an enigmatic disease of yet-unknown origin and pathogenesis. It is sustained by theories from long ago, when Sampson described it as ectopic implants of menstrual shredding passed to the abdominal cavity through the Fallopian tubes. Recently, Brosens and Benagianosuggested that it starts with neonatal hormonal deprivation bleeding that many newborn girls express in a retrograde fashion. Implants would remain until puberty.A celomic theory states that embryonic cells from the Mullerian ducts persist in ectopic locations. At puberty, stimulated by estrogens, they grow to build up endometriosis lesions.[8-10]

The in vitro fertilization process breaks down into three essential components: induction of ovulation, fertilization of the oocyte, and development of embryos that are transferred into the uterus. Problems may arise resulting in failure at any one of these junctions. Ovulation induction is monitored by both the use of ultrasound and estradiol levels, ultrasound indicating the number of oocytes that will be available for capture, and estradiol indicating in

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an indirect way the quality of that oocytes.[11]hence; the present study was conducted for assessing the outcome of IVF in advanced endometriosis with previous surgery.

In the present study, mean age of the subjects of the study group and control group was 32.6 years and 33.9 years. Mean infertility duration was 6.9 years and 7.1 years respectively.Mean hMG among subjects of study group and control group was 12.3 days and 11.8 days respectively. Aboulghar MA et al evaluated the outcome of in vitro fertilization (IVF) in patients with advanced pelvic endometriosis and previous surgical treatment.Patients with the diagnosis of stage IV endometriosis with previous surgical treatment were treated by IVF (group A=85). An age-matched group of patients (group B = 177) with tubal factor infertility were treated with the same protocol of IVF. In group A, cycle cancellation because of poor response occurred in 29.7% compared with 1.1% in the control group (relative risk 26.03, 95% CI 6.02-112.45). There were 13 (15.3%) clinical pregnancies per stimulated cycle in group A compared with 93 (52.5%) clinical pregnancies in the control group, P <.0001 (odds ratio 0.29, 95% CI 0.15-0.55).The outcome of IVF in stage IV endometriosis with previous surgery was significantly lower compared with an age-matched group of tubal factor infertility.[12]

In the present study, mean withdrawal rate was 30 percent among subjects of study group while among control group subjects, it was 3.33 percent. Mean implantation rate among subjects of study group and control group was 10 percent and 30 percent respectively. Significant better results were obtained control group.Azem F et al, in another study, evaluated the outcome of IVF in patients with stages III and IV endometriosis.The comparison between patients with endometriosis and those with tubal infertility indicated that the former had a poor IVF outcome in terms of reduced fertilization rate (40% vs. 70%), reduced pregnancy rate per cycle (10.6% vs. 22.4%), and reduced birth rate per cycle (6.7% vs. 16.6%). The differences were statistically significant.The results show an unfavourable outcome of IVF-ET in patients with endometriosis when compared with those who have tubal infertility.[13]Opøien HK et al assessed success rates of IVF and intracytoplasmic sperm injection in women with various stages of endometriosis.Women with endometriosis had similar pregnancy and live birth/ongoing PR as did women with tubal factor infertility, but the American Society for Reproductive Medicine (ASRM) stage I and II endometriosis patients had a lower fertilization rate, and stage III and IV patients required more FSH and had fewer oocytes retrieved. With the exception of patients with endometrioma, infertile women with various stages of endometriosis have the same success rates with IVF and intracytoplasmic sperm injection as patients with tubal factor.[14]

Conclusion

Unfavourable outcome of IVF is seen among patients with advanced endometriosis with previous surgery.

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