

Original Article

ROLE OF HYSTEROSCOPY PRIOR TO ASSISTED REPRODUCTIVE TECHNIQUE

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ABSTRACT

INTRODUCTION: In-vitro fertilization (IVF) is considered to be one of the major medical breakthroughs of the 20th century. However, only 25–30% of cycles of IVF and intracytoplasmic sperm injection (ICSI) lead to success. The cause of this implantation failure is poorly understood but is thought to be determined by both the embryo and the uterine cavity. Studies suggest the most frequent cause to be chromosomal abnormalities in the embryo, but abnormalities of the uterine cavity such as polyps, myoma, septum and adhesions are also thought to be associated with impaired implantation and reduced chance of pregnancy. Hysteroscopy is regarded as the reference standard to detect these uterine abnormalities. Hence, ruling out any evidence of any intrauterine pathology by hysteroscopy becomes an important step before subjecting the patient to IVF. The aim of the present study is to assess whether pre IVF Hysteroscopy improves the clinical pregnancy rate in women undergoing assisted reproductive techniques. **METHODS:** The study is a retrospective study of 503 women who attended our infertility clinic over a period of last 6 months (January 2018 to October 2018). All women who opted for pre IVF hysteroscopy were taken as Group A and those who denied were grouped under Group B. Intrauterine lesions, such as, synechiae, polyps, submucosal myomas, septae, and so on, were treated with scissors and resectoscope. The primary outcome was positive clinical pregnancy rate (Bhcg –positive). **RESULTS:** Between Jan 2018, and Oct 2018, we randomly assigned 503 women to receive either hysteroscopy (Group A=291) or immediate IVF (Group B=212) without undergoing hysteroscopy. Among Group A (291), those with normal uterine cavity were assigned as Group Aa (237) and those with abnormal finding assigned as Group Ab (54). Group A had normal finding in 237 patients (Group Aa) ,out of which 85 had positive pregnancy outcome(35.86%) compared to (Group Ab) with abnormal finding being corrected in 54 women, out of which 19 had positive pregnancy(35.18%). There was no statistical significance in pregnancy rate in Group B compared neither to Group A nor the subgroups of Group A. **CONCLUSION:** Routine hysteroscopy before IVF in women does not improve the clinical pregnancy rate .Further research into the effectiveness of surgical correction of specific uterine cavity abnormalities before IVF is warranted.

INTRODUCTION:

In-vitro treatment (IVF) is viewed as one of the significant clinical forward leaps of the twentieth 100 years. The utilization of IVF has expanded step by step since the introduction of Louise Brown in 1978, and in excess of 5 million kids are assessed to have been brought into the world with the assistance of this

technology¹. In any case, just 25 — 30% of patterns of IVF and intracytoplasmic sperm infusion (ICSI) lead to progress. The reason for this implantation disappointment is inadequately seen yet is believed not entirely set in stone by both the undeveloped organism and the uterine cavity.²⁻⁴ Studies propose the most successive reason to be chromosomal irregularities in the

embryo,³ however irregularities of the uterine hole, for example, polyps, myoma, septum and grips are additionally remembered to be related with weakened implantation and diminished possibility of pregnancy.^{4,5} Hysteroscopy is viewed as the reference standard to recognize these uterine abnormalities.^{6,7} Hence, precluding any proof of any intrauterine pathology by hysteroscopy turns into a significant stage prior to exposing the patient to any of the helped regenerative procedures (ART). The point of the current review is to evaluate whether pre IVF Hysteroscopy further develops the clinical pregnancy rate in ladies going through helped regenerative methods

METHODS:

The study is a retrospective study of 503 women who attended our infertility clinic over a period of last 6 months (January 2018 to October 2018). All women who opted for pre IVF hysteroscopy were taken as Group A and those who denied were grouped under Group B. They were given freedom to choose to undergo the procedure after explaining in detail about the advantages of the procedure and also explaining that it was not compulsory. All women in whom hysteroscopy was done were informed about the technique and the potential risks in the form of a written consent. The selected women (Group A) underwent the procedure of

hysteroscopy under general anesthesia in the lithotomy position. Outpatient hysteroscopy was done using a rigid 30° view 2.9 mm diameter hysteroscope with an atraumatic tip in a vaginoscopic approach. Normal saline was used as the distension medium, keeping the uterine pressure between 100 and 150 mm of mercury. Intrauterine lesions, such as, synechiae, polyps, submucosal myomas, septae, and so on, were treated with scissors and resectoscope. The primary outcome was positive clinical pregnancy rate (Bhcg —positive).

RESULTS:

Between Jan 2018, and Oct 2018, we randomly assigned 503 women to receive either hysteroscopy (Group A=291) or immediate IVF (Group B=212) without undergoing hysteroscopy. Among Group A (291), those with normal uterine cavity were assigned as Group Aa (237) and those with abnormal finding assigned as Group Ab (54).

Group A had normal finding in 237 patients (Group Aa), out of which 85 had positive pregnancy outcome (35.86%) compared to (Group Ab) with abnormal finding being corrected in 54 women, out of which 19 had positive pregnancy (35.18%). (TABLE 1)

There was no statistical significance in pregnancy rate in Group B compared neither to Group A nor the subgroups of Group A (TABLE 2).

TABLE 1

Hysteroscopy	Diagnostic	No of cases	No of positive pregnancies	%
Done(GROUP A)	Normal	237	85	35.86
	Polyp	50	18	36
	septum	4	1	25
Not done(GROUP B)	Normal	212	74	34.9

TABLE 2

HYSTEROSCOPY	PREGNANCY	TOTAL	P-VALUE	
	NEGATIVE	POSITIVE		
GROUP A	187	104	291	0.847
GROUP B	138	74	212	
TOTAL	325	178	503	
GROUP Aa	152	85	237	0.832
GROUP B	138	74	212	
TOTAL	290	159	449	
GROUP Ab	35	19	54	0.969
GROUP B	138	74	212	
TOTAL	173	93	266	

DISCUSSION:

In the past few decades many artificial reproductive techniques have been invented raising the hopes of infertile couples. However, still many patients have remained without success even with these procedures. It has been known that the uterine factor plays about a 15 - 20% role in contributing to female infertility. Hence, ruling out any evidence of any intrauterine pathology by hysteroscopy becomes an important step before subjecting the patient to any of the assisted reproductive techniques (ART). Although both ovum collection and fertilisation are usually successful, a largely unexplained gap remains between the number of embryo transfers and the number of ongoing pregnancies (defined as >12 weeks of gestation)⁸. Hysteroscopy is thought to improve pregnancy rates in women scheduled for IVF through detection and surgical removal of uterine cavity abnormalities;⁹ dilatation of the cervical canal to allow

future embryo transfer;¹⁰ or induction of an inflammatory reaction of the endometrium by the procedure itself.¹¹

Structural abnormalities of the uterine endometrial cavity may affect the reproductive outcome adversely, by interfering with the implantation and causing spontaneous abortion. These abnormalities can have a negative effect on pregnancy in these women. Different hypotheses have been suggested to define the mechanism of infertility due to intrauterine pathologies. Polyps may cause infertility by virtue of their location, thereby causing mechanical block (e.g., tubocornual polyp) by their association with endometriosis, or by expression of the enzyme aromatase. Myomas that protrude into the cavity may decrease vascular supply to the trophoblastic tissue when implantation takes place on the overlying endometrium. Most septa are relatively avascular and hence result in implantation failure when implantation takes place over them. Other pathologies

like synechiae, endometritis, cervical stenosis, and chronic cervicitis can be causes of subfertility.

The place of routine hysteroscopy in the management of infertile women without other diagnosed or doubtful intrauterine pathologies is still a matter of debate.¹²The two main problems that argue against the case of hysteroscopy are: first, it is an invasive procedure, and second, there is still an ongoing debate about the real significance of the observed intrauterine pathology on fertility.¹³Currently, the European Society of Human Reproduction and Embryology (ESHRE) guidelines indicate hysteroscopy to be unnecessary, unless it is for the confirmation and treatment of doubtful intrauterine pathology. Nevertheless, in a study by Shoker *et al.*, it was suggested that 26% of the patients with normal hysterosalpingography were with abnormal hysteroscopic findings.¹⁴

The impact of polyps on infertility is mainly dependent on their size and location. A prospective randomized study of the impact of polyps on an IVF program, by Lass *et al.*,¹⁵ concluded that small endometrial polyps (less than two centimeters) do not decrease the pregnancy rate after IVF, but a trend toward increased pregnancy loss exists.

The role of hysteroscopic septal resection in patients with septate uterus has also been studied extensively.¹⁶A meta-analysis of retrospective data comparing pregnancy outcome before and after hysteroscopic septoplasty indicated a marked improvement after surgery, in increasing the pregnancy rate and decreasing the miscarriage rate.¹⁷Several studies have also been performed to find out if hysteroscopic treatment of intrauterine pathologies increases the success of IVF-ET. Kirsop *et al.*, suggested that intrauterine abnormalities

may be a cause for failure of IVF-ET or Gamete Intrafallopian Transfer (GIFT) and therefore hysteroscopy should be part of the infertility workup for all patients, prior to undergoing IVF treatment.¹⁸

Faghali *et al.*, have also recommended screening the uterus by hysteroscopy before proceeding with IVF, to minimize implantation failures.¹⁹The role of hysteroscopy in patients with previously failed IVF cycles has also been studied. A recent systematic review and meta analysis of two randomized and three non-randomized control trials on 1691 patients concluded that hysteroscopy before a subsequent IVF attempt significantly increases the odds for conception in patients with at least two failed IVF attempts²⁰.

The present study proves pre IVF hysteroscopy to be unnecessary in women without any documented uterine pathology.

CONCLUSION:

Routine hysteroscopy before IVF in women does not improve the clinical pregnancy rate. Further research into the effectiveness of surgical correction of specific uterine cavity abnormalities before IVF is warranted.

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