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ARTICLE

Results of 2500 office-based diagnostic hysteroscopies before IVF

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Abstract The aim of the study is to assess the diagnostic accuracy, findings and feasibility of office-based diagnostic hysteroscopy in an IVF population. A total of 2500 consecutive infertile patients were enrolled prospectively prior to IVF treatment. Diagnostic hysteroscopy was performed on each subject in an office setting in the study IVF centre. A total of 1927 patients (77.1%) had a normal uterine cavity, while the remainder of the sample ($n = 573$) demonstrated endometrial pathology on hysteroscopy (22.9%). Of the patients with endometrial pathology, 192 patients had endometrial polyps (7.68%), 96 patients had submucosal fibroids (3.84%), 31 patients had polypoid endometria (1.24%), 27 patients had intrauterine adhesions (1.08%) and 73 patients had uterine septa (2.92%). Diagnostic office-based hysteroscopy is routinely performed in the IVF clinic to assess the endometrial cavity. In such an unselected population, a significant percentage of patients had evidence of uterine pathology that may have impaired the success of IVF. Safety, ease of use, high diagnostic accuracy and high patient tolerance makes office-based hysteroscopy an ideal procedure.

KEYWORDS: endometrial pathology, in-vitro fertilization, office-based hysteroscopy

Introduction

Success in assisted reproduction treatment programmes, as measured by pregnancy rate and take-home baby rates depends on several factors. One of the major factors is embryo quality, and another is uterine receptivity and integrity. It has been established that an abnormal uterine environment is present in up to 50% of infertile women (Cumming and Taylor, 1980; Linderman and Mohr, 1976; Prevedourakis et al., 1994). Endometrial pathologies resulting in an abnormal uterine environment, such as endometrial polyps, adhesions, hyperplasia, endometritis and structural abnormalities, can have detrimental effects on IVF success (Golan et al., 1996; Kirsop et al., 1991; Vale, 1980; Varasteh et al., 1999). The high prevalence of intrauterine pathologies in infertile patients makes evaluation

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of the uterine cavity for fibroids, polyps, adhesions and Müllerian abnormalities a reasonable decision.

Optimizing even the first cycle of IVF—ICSI is of great importance given the high cost of the technology. Until recently, many clinicians dealing with infertility have preferred to use hysterosalpingogram (HSG) as a first-line approach in assessing the integrity of the uterine cavity and detecting pathologies. However, HSG has many drawbacks, including its inherent diagnostic limitations, use of radiation, challenging scheduling requirements and complications such as infection, vasovagal and allergic reaction to contrast. HSG has a false positive rate of 15.6% and a false negative rate of 35.4% (Cunha-Filho et al., 2001; Golan et al., 1996; Wang et al., 1996). This means that in more than one-third of all cases in which HSG is interpreted as normal, there might actually be pathology. Such a result gives rise to false reassurance. Recently, saline infusion sonohysterography (SIS) has been used by many IVF programmes for assessing the uterine cavity. However, direct visualization of the uterine cavity by office hysteroscopy is accepted as the highest standard in the diagnosis of uterine lesions. This procedure also carries the advantage of being able to treat such pathologies at the time of the procedure. Clinicians may be reluctant to perform hysteroscopy as a first-line approach without a high degree of suspicion because it has traditionally required anaesthesia and an operative room setting. Recent advances in technology have made available smaller (i.e. less than 5 mm) calibre instruments that give clinicians the ability to perform hysteroscopy without anaesthesia in an office setting. Hysteroscopy provides the opportunity to evaluate benign endometrial abnormalities such as polyps, submucosal myomas, intrauterine adhesions and chronic endometritis. These pathologies, if undetected, may impair endometrial receptivity and implantation; furthermore, they are simple to treat at the time of the procedure. The aim of this study was to evaluate the results of office hysteroscopy routinely performed prior to IVF—embryo transfer on a large scale and to assess whether or not it should be recommended.

Materials and methods

Between April 2006 and September 2007, hysteroscopic findings in 2500 consecutive patients admitted to the IVF unit were analysed retrospectively in this observational clinical study. The study selected patients who had been unable to conceive for at least 3 years and who were without prior at-term pregnancies. The findings of the first hysteroscopies of the 2500 patients were recorded. The patients in which the findings were normal proceeded to an IVF cycle within 1 month. Those with abnormal findings were treated appropriately. The uterus and the endometrial cavity were found to be normal by ultrasonography as well as by office hysteroscopy and/or HSG performed within 1 month prior to the IVF treatment in all patients. The hysteroscopies were performed by the six gynaecologists specialized in infertility. The gynaecology staff carries a licence that shows ability to perform laparoscopy and hysteroscopy. Residents under the supervision of a specialist performed the HSG procedures which were interpreted by specialists. Ultrasonography was performed by specialists. The study group included 1532 patients who were attempting IVF for the first time and 968 patients who had undergone and failed one or more IVF cycles. The indications of patients and the number of previous of IVF cycles are shown in **Table 1**. All hysteroscopies were performed 1—6 months before the IVF attempt using a 4-mm continuous-flow Bettocchi office hysteroscope (Karl Storz, Tuttlingen, Germany) with an incorporated 5 Fr. working channel for mechanical and electrosurgical instruments. Proper examination of the cavity was ensured by using 30-degree lenses. Intrauterine pressure was maintained around 30 mm Hg, avoiding over-distension of the uterine muscle fibres and patient discomfort with the Storz endobag system with sphingomanometer manually. Since glycine (Biosel, Turkey) yields better visualization and is cheaper than mannitol, the uterine cavity was distended with glycine solution.

All office hysteroscopies were performed with a vaginoscopic approach described by Bettocchi and Selvaggi (1997) without utilizing a speculum and applying traction of the cervix with a tenaculum causing minimal discomfort. Warmed glycine was used for patient comfort. The vagina was filled with glycine for distension and, after careful vaginal examination, the cervix was generally located by the aid of cervical mucus. Cervical canal was explored with hysteroscopy noting the angles and stenosis. The introduction of scope was performed with very slow motions without using tenaculum to cause less discomfort and pain. All procedures were performed without anaesthesia and analgesia. Antibiotic prophylaxis was applied to all patients prior to the procedure to prevent pelvic infection. Patients with active vaginal infection were excluded from the study. The antibiotic regimen was 100 mg of doxycycline (Deva, Turkey) taken in the morning of the procedure continued for 2 consecutive days. Each patient signed the informed consent form for the procedure. Approval by the institutional review board of

Table 1 Aetiology of infertility in patients and number of previous cycles.

Aetiology	*No. of previous IVF cycles*				
	0	*1*	*2*	*3*	*4*
Male factor	812	290	65	15	0
Unexplained	495	319	82	11	4
Tubal	101	69	33	0	0
Anovulation	22	0	0	0	0
Advanced age	102	58	22	0	0