

Endometrial scratching technique

Madalina Piron^{1,2}, Lucian Pop¹, Nicolae Bacalbasa^{2,3}, Irina Balescu⁴, Ioan D. Suci⁵,
Roxana Elena Bohiltea², Claudia Stoica^{6,7}

¹“Alessandrescu-Rusescu” National Institute of Mother and Child Care, Bucharest, Romania

²Department of Obstetrics & Gynecology, “Carol Davila” University of Medicine and Pharmacy, Bucharest, Romania

³Department of Visceral Surgery, Center of Excellence in Translational Medicine,
Fundeni Clinical Institute, Bucharest, Romania

⁴Department of Visceral Surgery, Ponderas Academic Hospital, Bucharest, Romania

⁵General Surgery Department, Floreasca Emergency Hospital, Bucharest, Romania

⁶Department of Anatomy, “Carol Davila” University of Medicine and Pharmacy, Bucharest, Romania

⁷Department of Surgery, Ilfov County Emergency Hospital, Bucharest, Romania

ABSTRACT

Problems of female subfertility are a current challenge. Implant failure of the embryo after an assisted human reproduction technique is undesirable and unpleasant, and strategies to improve this implant rate are welcome. One of these techniques is endometrial scratching. We performed a literature review by searching in the PubMed and Cochrane databases for relevant information regarding the technique of endometrial scratching. The technique of endometrial scratching is not complex, but choosing an optimal period in the menstrual cycle seems to produce the desired effects for the successful implantation of the embryo. Pregnancy rates obtained through assisted human reproduction techniques have been improved due to endometrial scratching techniques.

Keywords: assisted human reproduction, endometrial scratching, pregnancy, technique

INTRODUCTION

Europe is at the fore front of ART (assisted reproduction technique), initiating half of all reported cycles. Out of 44 European countries, 40 of them reported 918,159 IVF cycles just in 2016. USA reported 264,000 cycles, while Australia and New Zeland 81,000 cycles. There is a steadily increase in a number of processes performed in developed countries by a rate of 5-10% pe yearly, but recent statistics showed that growth is slowing down. Across the globe, more than one and a half million cycles are reported, with 333,000 deliveries. This data represents approximately 70% of all ART cycles performed. With aproximatively 2.4 million cycles at a rate of the baby take home of 20%, results are in 500,000 newborns [1].

Although ART encompasses multiple procedures, in vitro fertilization (IVF) coupled with intra-

cytoplasmic sperm injection are by far the most frequent procedures in ART. The implantation rate is succeeding in only 25-30% per transferred embryo [2,3].

HISTORY

The foundation of these discoveries was laid in the early twentieth century by Loeb et al., demonstrating that mechanical scratching of the endometrium 2-9 days post ovulation is causing decidualization [4].

According to Barash et al. [5], endometrial irritation in the menstrual cycle before controlled ovarian hyperstimulation (COH) could improve the chance of a pregnancy and found a twice-double increase in live birth after numerous endometrial scratches compared to implantation in an intact endometrium. Since then, several study groups have

Corresponding author:

Nicolae Bacalbasa

E-mail: nicolae_bacalbasa@yahoo.ro

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looked into the effect of endometrial scratch on implantation rate with population differences, the device used (soft endometrial plastic biopsy catheter compared to Karman cannula or Novak suction curette), control (luteal or follicular part) and frequency [6-12].

TECHNIQUE

Endometrial scratching can be done with many different tools. The most common technique is the endometrial biopsy procedure, which is usually performed with a thin, flexible plastic tube 3 mm wide called a pipette. The pipette is inserted through the cervix into the uterus, where it is moved back and forth and rotated to cause a disturbance. This is the same procedure as for an endometrial biopsy. The process has recently been renamed endometrial scratching due to its potential use in infertility. It is a simple, low-cost procedure that can be performed in an outpatient meeting without an anaesthetic in just a few minutes. However, it may cause some discomfort or pain. The risks of endometrial scratches include infection and perforation of the uterus, but these are very rare [10]. Scratching done between day 7 of the previous cycle and day 7 of the embryo transfer (ET) cycle is associated not only with improved clinical pregnancy rates but also with live birth in patients with more than two IVF cycles. Miscarriage, multiple pregnancies and bleeding are not increased following this procedure, which is slightly uncomfortable. Nevertheless, endometrial injury simultaneous with oocyte retrieval is associated with decreased clinical pregnancy rates [6].

HYPOTHESES

Several hypotheses have been proposed to support the positive effect of scratches on pregnancy rates, but the rationale behind its mechanism is elusive [6,11].

According to Nastri et al., for women suffering from assisted reproductive technology (ART), an endometrial irritation in the month before controlled ovarian hyperstimulation (COH) increases the chance of becoming pregnant and giving birth in women who already had two or more unsuccessful embryo transfers [6]. Still, the evidence is less robust [10]. Panagiotopoulou et al. tried to perform a meta-analysis regarding endometrial lesion but could not conclude the scratch's effectiveness due to major clinical heterogeneity [11]. This underscores the urgent necessity for large randomized controlled trials focused on specific groups of infertile couples [11].

DISCUSSIONS

Endometrial scratching is a simple, inexpensive technique that deserves to be considered in selected cases. However, the timing of the manoeuvre seems to be a decisive factor in its success.

In performing an IVF cycle, doctors should always bear in mind, complications that can occur at each stage. Starting with ovarian hyperstimulation syndrome, that can become life threatening, continuing with uterine perforation at the time of scratching, oocyte retrieval complications such as haemorrhage, infection, pelvic viscera, blood vessels, bowel injury. Englert and Govaerts report a pelvic infection rate of 0,4% and intraperitoneal bleeding of 0.2% [12]. Torsion is extremely rare in IVF, but it can appear, and it has a typical picture with a sudden and excruciating pain [13]. Ectopic pregnancy is higher in IVF, but this is due to numerous factors, including number of embryos transferred, tubal pathology and technique of transfer [8].

LITIGATIONS

The current malpractice system involving torts and litigation is a complicated and by some expert, dysfunctional system. The area of claims and outcomes involving reproductive endocrinology and infertility (REI) branches is rather ill defined. Majority of cases that occur are due to errors, miss diagnosis and lack of informed consent, especially since genetics became an important part in fertility. Preimplantation genetic testing is required by more and more couples, therefore a comprehensive discussion with the patients is strongly recommended [15].

COUNSELLING

Focusing on the medical and biological part of infertility, is endangering us to overlook the emotional side of this issue. Counselling infertility means that both aspects have to be addressed and integrated to achieve the best possible outcome. It is essential that communication between the different sides involved in fertility treatment to include in the loop the patient as well, so he can be updated at any stage of the procedure. Whatever information is provided to the patient, this has to be within the boundaries of guidelines, protocols issued by the professional bodies or health authorities [16].

COST ASSESSMENT

Whenever a couple and a doctor considering fertility treatment particularly IVF, a cost assessment has to be done. There is a wide range of prices not only between European countries but even within

the same borders. In some countries, IVF procedures are government funded while in other private insurance cover one or several procedures [17].

CONCLUSIONS

Subfertility is a growing chapter and with new advances in embryology, genetics surgery patient expectation will be higher. Probably the most im-

portant factor contributing to subfertility, is postponing the pregnancy. New challenges require new solutions. A wide options of treatment are available in infertility but, each treatment should be tailored according to patients needs. There is no consensus among experts regarding the best way in infertility, but endometrial scratching appears to be of benefit in cases where previous IVF cycles have failed.

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