

ETIOLOGICAL FACTORS AND INFERTILITY TREATMENT TACTICS

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ABSTRACT:

The article under discussion discusses etiological factors infertility treatment tactics. The authors of the article consider that infertility affects millions of people of reproductive age worldwide and affects their families and communities. Infertility treatment includes prevention, diagnosis and treatment of infertility. Environmental and lifestyle factors such as smoking, excessive alcohol consumption and obesity can have an impact on fertility. Treatment of infertility usually starts with general health measures, including diet, avoiding bad habits, reducing body weight and avoiding factors that may reduce fertility. If hormonal abnormalities or inflammatory processes are detected, medication therapy is prescribed at the same time.

Keywords: fertility treatment, etiological factors, reproductology, absolute infertility, primary and secondary infertility, methods of contraception, ectopic pregnancy, childbirth, abortion, miscarriage.

INTRODUCTION:

The last decade has been characterized by a growing incidence of different uterine illnesses in young women, including those with unrealized reproductive function, which dictates the need for a thorough examination [1]. Infertility is the lack of pregnancy during a year of regular sexual life without the use of

contraceptives. In most cases this problem can be successfully solved. For this purpose, modern clinics of reproductology were created, where the well recommended methods of infertility treatment are practiced.

A distinction is made between relative and absolute infertility. The first type refers to cases in which it was possible to identify and eliminate the causes of the violations in the patient. Absolute infertility refers to irreversible physiological changes in the genital apparatus (pelvic organ anomalies, traumatic injuries, surgical removal of reproductive glands).

There is also a distinction between primary and secondary infertility. In primary infertility has no history of pregnancy at all, although there is a regular sex life without any means or methods of contraception. Secondary is said to have had at least one pregnancy (regardless of how it ended: childbirth, abortion, miscarriage, ectopic pregnancy).

MAIN PART:

Symptoms and Causes Of Infertility:

Infertility is divided into male and female. Accordingly, there are different causes, diagnosis and treatments.

The Causes of Female Infertility:

- Problems with ovulation;
- Hormonal problems;
- Ovarian dysfunction;
- Damage to the fallopian tubes, adhesions;
- Polycystic ovaries;
- Hormonal imbalances;

- Scarring of the ovarian membranes;
- Cervical erosion;
- Early menopause;
- Cervical canal abnormalities;
- Defects in the development and structure of the uterus;
- Psychological causes;
- Endometriosis;
- Ruptured follicle syndrome.

The most common causes include the following disorders:

Incompleteness or absence of fallopian tubes:

It is there that the egg and sperm meet, merge and form an embryo that enters the uterus. The development of obstruction is mainly due to the formation of adhesions (adhesions of the walls) of the tubes as a result of their inflammation. Occasionally, sterilization, in which the fallopian tubes are ligated or crossed, leads to adhesions. The absence of a tube may be due to an operation performed for vital indications (local purulent process, ectopic pregnancy).

Pelvic adhesions:

They occur after an inflammatory process, endometriosis or a surgical procedure. The adhesions may encircle the ovary or become localized between it and the tube, obstructing the passage of the egg.

Endometriosis:

Endometriosis is a disease in which the lining of the uterus (endometrium) grows outside the uterus. This results in an overgrowth with adhesions between the mucous membranes preventing the fertilization process. Endometriosis leads to functional and structural changes in the reproductive system, often adversely affecting the psycho-emotional state of women, significantly reducing their quality of life [2].

Endocrine disruption:

Endocrine disruption is observed in ovarian, thyroid, pituitary gland, hypothalamus, adrenal glands, kidneys and liver disorders. May be caused by a metabolic disorder or severe mental stress, shock.

Psychogenic infertility:

It occurs as a psychological reaction to an unwanted pregnancy. The woman may deliberately or unconsciously be afraid of childbirth or of possible changes to her appearance as a result of the pregnancy. Sometimes the reluctance to conceive with that particular partner is the cause.

Immunological infertility:

It occurs when there are antibodies against the sperm in the woman's body preventing fertilisation. Antibodies make the spermatozoa immobile and impede their passage through the woman's body.

Causes of infertility in men:

- Incomplete sperm (impaired motility and viability);
- A sharp decrease in their number;
- Difficult movement of spermatozoa through the vas deferens and their ejection to the outside.

Causes of male infertility may include:

- Varicocele;
- Congenital anomalies of the sexual apparatus (hypospadias, absence or obstruction of the vas deferens);
- Isolated abnormalities in the seminal fluid;
- Infectious-inflammatory diseases of the genitourinary system;
- Surgical interventions (groin hernia, hydrocele, bladder surgery, etc.);
- Systemic diseases (cirrhosis of the liver, tuberculosis, diabetes, infectious parotitis with orchitis complications, chronic renal failure);

- Sexual and ejaculatory disorders;
- Psychogenic factors;
- Necrozoospermia;
- Obstructive azoospermia;
- Endocrine (hormonal) disorders [3].

Additional causes are alcohol and nicotine abuse, radiation exposure, scrotal trauma. Work in harsh and unhealthy occupational conditions, e.g. at very high or low temperatures, or in a toxic environment has a negative impact on the reproductive function. Separately, there are factors that can provoke a reduction in sperm count: stress, malnutrition (lack of protein and vitamins in the diet), chronic lack of sleep.

Classification of sperm abnormalities:

Regardless of what exactly caused infertility in a man, its mechanism can always be clarified with the help of a spermogram. The following sperm abnormalities are distinguished:

- Azoospermia - sperm (ejaculate) contains no sperm. It is divided into secretory and obstructive forms. In the secretory form the testicles do not produce sperm, with obstruction due to obstruction of the vas deferens impaired ejaculation.
- Oligozoospermia is a low sperm count in the ejaculate (normally at least 15 million / ml).
- Oligospermia - small sperm volume (normal - not less than 1.5 ml).
- Anejaculation - complete absence of sperm.
- Asthenozoospermia - sperm motility is low.
- Necrospermia - the ejaculate contains no living sperm.
- Teratozoospermia - violation of sperm structure.

Infertility of unclear genesis:

It occurs in both male and female patients. This is the situation referred to when, after careful diagnosis of the spouses no cause of infertility was found. Doctors conclude that

the couple is perfectly healthy but they are not able to conceive. The reason for this is that modern diagnostics are still unable to identify all of the causes of human reproductive system disorders. Often a different cause is mistakenly identified instead of an unclear genesis and therefore measures to eliminate it do not bring the desired result.

Sometimes the cause of infertility of unclear genesis is due to incompatibility of partners at the biological or immunological level. This is illustrated by situations where couples have failed to conceive for many years, and after divorce, each of them soon have children with new families.

Diagnosing infertility:

As with any other disorder, good diagnosis of male and female infertility is the key to successful treatment. It is essential that infertility diagnosis should be done by both partners. To begin with, blood tests for hormones, tests to detect infections and ultrasounds of the pelvic organs should be done.

Infertility tests for women:

The following procedures are used to diagnose infertility in women:

- Ultrasound-guided gynecological examination is the first stage of the woman's examination to assess the size and structure of the uterus and ovaries and to detect ovarian cysts, myoma and other pelvic organ abnormalities.
- Hysteroscopy is an examination used to examine the uterus cavity more accurately, making it possible to detect abnormalities that were not diagnosed during a routine examination or an ultrasound examination.
- Hysterosalpingography - a method to determine the patency of the fallopian tubes, based on the injection of a contrasting substance into the uterus, followed by a series of images.

- Blood tests for hormones - carried out to determine the function of the ovaries and endocrine system.
- Laparoscopy is both a diagnostic and therapeutic procedure. Laparoscopy allows the doctor to see a clear, enlarged image of the small pelvis organs on a screen. If the cause of infertility is detected, the specialist can remove the cysts, adhesions or endometriosis during the procedure.
- A basal temperature graph is prepared by the patient herself over 2 to 3 menstrual cycles, and is used to assess ovulation.
- Ultrasound monitoring of follicle maturation and ovulation - appointed at the discretion of the doctor as an additional survey.

Infertility diagnosis in men:

- General clinical tests, blood tests for hormones.
- Ultrasound scrotum and prostate.
Spermogram (full-depth analysis of sperm, which examines its physical parameters, chemical and cellular composition):
- Concentration of spermatozoa (should be more than 15 million per 1ml);
- Spermatozoa motility (above 40%);
- Number of normal sperm forms (at least 4%);
- Vitality (over 58%);
- Ejaculate volume (1.5 ml or more);
- Total sperm count (39 million or more).

In addition to these indicators, sperm colour, odour, acidity and leucocyte content are of particular importance. Spermogram also determines the presence or absence of antisperm antibodies produced by immunological form of infertility - MAR-test [4].

There are a few things a doctor has to do to have a spermogram. He should not drink alcohol or take antibiotics, go to sauna for a fortnight before the test. Should refrain from sexual intercourse within 4-7 days.

Often a sperm maturity test (sperm BIA test) is done at the same time as a spermogram. The test determines the sperm's binding to hyaluronic acid, an important component of the environment surrounding the egg. This parameter is crucial for fertilization. A mature sperm usually binds to hyaluronic acid with special receptors, while immature sperm cannot bind. Normally, the maturity of sperm should be 60% or more, otherwise it is not possible to conceive naturally.

The doctor may prescribe a testicular biopsy as an additional examination to find out the presence of spermatozoa and the state of tissue. This procedure may also be used for therapeutic purposes.

Treatment methods for male and female infertility:

Infertility treatment tactics are determined by a fertility doctor on the basis of a patient's medical history and comprehensive diagnostic results. Treatment methods are divided into the traditional methods (medication, surgery) and assisted reproductive technology (ART). It should be understood that in the treatment process, even of one partner, the other partner is also directly involved. Therefore, the treatments described below for female and male infertility are relevant for both spouses.

Treatment for female infertility:

The method of treatment is determined by the cause of the abnormality. The pharmacological treatment is applied:

- In endocrine infertility, based on the administration of preparations containing hormones (urinary or recombinant gonadotropins, clomid);
- Infertility caused by infectious diseases (antibiotic treatments: metrogil, metronidazole, ofloxacin, ciprofloxacin and others);

- Immunological infertility (prescribed antihistamines and corticosteroids).

Surgical treatment techniques are effective in tubal and uterine abnormalities. Surgical techniques include laparoscopy and hysteroscopy [5].

Assisted Reproductive Technologies in Women:

When traditional treatment methods are ineffective, ART is resorted to. There are many reproductive techniques available:

- Planned sexual intercourse;
- Artificial intrauterine insemination;
- In Vitro Fertilization (IVF);
- Oocyte donation;
- Sperm to oocyte injection (ICSI);
- Surrogacy.

Intrauterine insemination is based on introducing sperms into the uterus artificially, using a catheter. Then everything happens in a natural way: spermatozoa move towards the egg through the fallopian tubes and fertilisation occurs. The integrity of the fallopian tubes is a must. Insemination is possible either with a partner's sperm or with a donor's sperm. This method is useful if the fertility of the couple is low (low number or absence of sperm, low mobility) and if a healthy woman wants to get pregnant alone.

In-vitro fertilisation (IVF) consists of fertilisation of an egg in laboratory conditions, obtaining embryos and transferring them into the uterus - this is the standard technique. It is possible to carry out IVF using a donor egg or donor sperm. IVF consists of several stages, stretching over a long period of time. It is a complicated but effective method and is carried out by highly qualified reproduction specialists.

Male infertility treatment:

When treating secretory male infertility when possible seeks to eliminate the cause - varicocele, hydrocele testis, parotitis, remove

an adverse factor. Once the cause is removed, a course of therapy aimed at improving spermatogenic testicular function - drug therapy. The course includes taking medications that stimulate blood flow to the scrotum, vitamin therapy, complete nutrition and adherence to treatment. Sometimes a hormone booster treatment is necessary [6].

Treatment of obstructive form of infertility in men is based on performing different types of biopsies - surgical extraction of mature sperm from the testis and its appendages. Special techniques have been developed for this: puncture (TESA for the testicular tissue and PESA for the appendages) and small incisions (TESE and MESE respectively). Rehabilitation period after a biopsy is 10-12 days, during which time physical activity, sexual intercourse, and increased physical activity are contraindicated.

Contraindications in the treatment of infertility:

The main contraindications to infertility treatment include:

- Somatic and mental diseases, in which pregnancy and childbirth are contraindicated;
- Oncological diseases;
- Acute infectious and inflammatory processes of any localization.

CONCLUSION:

Treatment of infertility usually starts with general health measures, including diet, avoiding bad habits, reducing body weight and avoiding factors that may reduce fertility. If hormonal abnormalities or inflammatory processes are detected, medication therapy is prescribed at the same time.

Surgical treatment may include removal of polyps, dissection of adhesions, removal of myomatous nodules and restoration of fallopian tube permeability. If difficulties in

oocyte maturation are detected, ovulation induction may be prescribed.

Male infertility treatment may also be conservative or surgical. Medical treatment may involve taking hormones, antioxidants, antibiotics or drugs to correct sexual dysfunction. If necessary, interventions for varicocele, obstruction of the vas deferens etc. are carried out.

There are also other ways to treat the different causes and symptoms of male and female infertility.

Assisted Reproductive Technologies (ART) are used when necessary. Especially relevant are modern methods for overcoming infertility in the absence of ovulation, fallopian tube obstruction, decreased ovarian reserve and sperm abnormalities.

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