

*Focus on...*

# Infertility

► FOCUS HEALTH



**IBSA FOUNDATION**  
*for scientific research*

**Talking  
about  
infertility  
is not  
easy**

A diagnosis of infertility paralyzes, gives anxiety, anger, feelings of inferiority, depression. However, accepting that in the intimacy of the couple enters the specialists also means willingness to share: **learning together the biological limits in order to overcome them.**

This booklet is intended as a **brief guide** for all couples who are beginning their journey towards a child to conquer, even with the **help of medicine.**

## **HOW MANY COUPLES WITH THIS PROBLEM?**

Although usually you feel alone and unique, in Italy about 20% of couples have infertility problems, defined as the absence of a pregnancy after one year of complete, regular and unprotected sexual intercourses. A significant percentage of couples, however, according to the World Health Organization (WHO) is able to have a child after two years of trying.

For this reason, we prefer to talk about infertility after two years of unprotected intercours.

## WHAT CAUSES INFERTILITY?

The causes of infertility are many for both women and men: late diagnosis of any disease (e.g. endometriosis), advanced age of the woman, the use of drugs (including anabolic steroids used sometimes in sports), alcohol abuse, smoking, sexual infections, excessive thinness or obesity (both due to hormonal imbalances), stress, pollution. In many of these cases (infections, eating disorders, drugs, etc.) correct information can be decisive; in others, such as endometriosis, timely and appropriate care can help couples to solve the problem. However, if after an adequate therapeutic approach couples fail to overcome these difficulties, they may decide to turn to the techniques of medically assisted procreation (MAP).

## FEMALE INFERTILITY

According to the Italian National Institute of Health (ISS) approximately 35.5% of the cases of the couple's infertility is due to the woman. Let's see what are the main causes.

### ▪ AGE

The profound socio-cultural changes of the last fifty years and the greater role of women in the labor market explain why more and more couples seek to have the first child after 35 years of age. Delaying the time when you try to become parents, however, has an impact on fertility. The most fertile period for a woman is, in fact, between 20 and 25 years, it is still high up to 35 years, and suffers a sharp decline from 35 to

40 years, and it is very low over 40. The cause of this slow decline depends on the irreversible reduction of the quantity and quality of oocytes (female egg cells) that are already present in the female fetus and age due to a natural process. The maximum amount (6-7 millions) of oocytes is present, in fact, in the fetus around the 20<sup>th</sup> week gestation. At birth, the baby already has a number oocytes significantly lower (1-2 millions), which will become 300,000-500,000 at the time of puberty, 25,000 at 37 years of age, 1000 at 51 years of age. With age there are also increased risks of diseases that can impair fertility – such as fibroids (benign tumors uterus), endometriosis or tubal problems – and it is higher chance of miscarriage (also in case of pregnancies obtained with the MAP techniques).

- **ANOVLUTION** (lack of ovulation)

The anovulation is the lack of development of the oocyte, the egg that can be fertilized by the encounter with the sperm. An obvious sign of anovulation is the absence of menstrual cycle or frequent menstrual irregularities, or cycles too close (under 22 days) or too late (above 35 days). It is important to know that the menstrual cycle is the final act of a complex work done by various organs responsible for the reproduction, such as the hypothalamus, the pituitary and the ovaries. Therefore, any alteration of these organs can cause a lack of ovulation. The main causes of hypothalamic-pituitary dysfunction include: hormonal changes, anorexia, excessive drop or significant increase in body weight, psychological stress. Finally, another common cause of anovulation can be polycystic ovary.

- **POLYCYSTIC OVARY**

This term refers to the presence of cysts within the ovary. In reality, these cysts are follicles that are not capable to release

the egg cell, so there is no ovulation. The cause of this disease is unknown, but it is often hereditary. What we do know is that the polycystic ovary is often associated with excessive production of male hormones that cause acne, tendency to baldness, and increased hair growth in typically male areas, such as the chest, chin and cheeks. There are risk factors that predispose to this disease and are represented by smoke, excess weight and cases of diabetes in the family.

- **ENDOMETRIOSIS**

It is an insidious and painful disease that can cause even permanent sterility. If in some women do not cause any symptom, in other manifests itself with painful menstruations, although for years they have not caused any problems. Normally, when conception does not occur, the mucosa (endometrium) that lines the uterus, after being prepared to receive the embryo is expelled with the blood during the cycle. In the endometriosis, instead, the mucosa takes an opposite path, going up through the fallopian tubes up to the abdominal cavity.

Endometriosis is a disease that severely affects the possibility of conceiving and, in many cases, even when complete healing is reached, fertility remains, at least partly compromised.

- **DAMAGES OF THE FALLOPIAN TUBES**

The tubes have the function of collecting the egg, carry the sperm to the egg, and after fertilization, conduct the embryo to the uterus. Therefore, any damage to the fallopian tubes prevents this transport causing infertility. Tubes problems are often caused by infections that involve cicatrizations which may cause a partial or total closure of the tubes. A tubal malfunction may also result from abdominal previous surgeries, which cause adherences, or from endometriosis.

## ▪ **THYROID DISORDERS**

These dysfunctions indicate an alteration in the production of thyroid hormones in excess (hyperthyroidism) or in defect (hypothyroidism). It is especially hypothyroidism which interferes with fertility because the slowing metabolism causes a slowdown of sex hormones. Thyroid dysfunctions may have an impact on the menstrual cycle: in hypothyroidism the cycles are getting longer and the blood is low, while in hyperthyroidism the cycles are getting shorter and the bleeding is abundant. These menstrual irregularities and ovulation disorders can clearly interfere with fertility.

## **MALE INFERTILITY**

Today, finally, male infertility (35.4 % of cases, according to ISS) is no longer a taboo and the man is conscious of being able to live a happy, normal sexual activity even if he cannot conceive children. According to several studies, male fertility would have almost halved over the last fifty years. Therefore, in addition to pathological causes, lifestyle (smoking, alcohol, drug use, exposure to toxic substances such as insecticides) and environmental conditions (pollution) seem to affect it. As for the women, studies have shown a decline in male fertility with age: an initial reduction of sperm quality begins at age 35, to become significant after age 40.

The causes of male infertility can be identified in the inability or decreased ability to produce normal sperm. The problems concerning the quantity and quality of sperm are different, so it is impossible to say with what number of sperm a man can conceive.

In addition to decreased ability to produce normal sperm, let's see now what are the main male infertility' causes.

- **AZOOSPERMIA** (absence of sperm in the semen)

We speak of *obstructive azoospermia* when there is sperm production but because of an obstruction in the seminal tract, the sperm remains confined in the testicles. It is defined, instead, *secretory azoospermia* the lack of sperm production by the testicles. Today, thanks to surgery, in the first case it is possible to intervene directly by taking the sperm from the testicle. More problematic is, instead, the secretory azoospermia because, as we said, the testis does not produce sperm. But sometimes, there are areas of sperm production in the testicular tissue where it is possible to make surgical withdraw.

- **OBSTRUCTION OF THE SEMINAL TRACT**

In this case the difficulty is not in the lack of sperm production, but in the obstacle to their release. Causes of obstruction may be congenital (i.e., present from birth), inflammatory or of traumatic origin. Whatever is the origin of the obstruction, it is now possible to remove it surgically and get an ejaculate with sperm.

- **RETROGRADE EJACULATION**

The seminal fluid is normal but the ejaculation instead of happening outwards, occurs inside, into the bladder. Therefore, the problem can be solved by retrieving the seed from urine passed immediately after intercourse.

- **VARICOCELE**

This disease is one of the most frequent causes of male infertility. It affects the vascular system of the testis and occurs as a bluish swelling that is visible through the skin of the scrotum (the sac that contains the testicles). It is caused by dilatation of testicular veins that are responsible for draining the blood from the testicle. It can be solved surgically but, sometimes, it can take even 2 years to achieve a pregnancy.

## ▪ INFECTIONS

The infertility caused by infections is unfortunately on the rise. Related to the number of partners and the lack of protection (more risky relationships you have, the greater are the chances of contracting infections) they are due to different agents, such as Candida and Chlamydia. Generally, these infections are asymptomatic in men until the partner complains about the first symptoms. The therapy is simple and consists, in general, in taking antibiotics.

## COUPLE'S INFERTILITY

In a certain percentage of couples (15%), both suffer a condition of infertility (*male and female factor*). However, there are also cases (13.2%) in which, although not sterile neither the woman nor the man, a couple is unable to have children. The reasons may be different and sometimes unknown: for this reason we speak of *idiopathic infertility*, the one that you cannot assign a certain cause. There are, moreover, *immunological sterilities* due to the fact that some women produce antibodies able to immobilize the sperm, preventing it to go up in the cervical canal of the uterus. Finally let us recall *cervical sterilities*: sperm, perfectly normal, go up in the cervical channel, reach the uterus and fallopian tubes but pregnancy does not occur anyway. In this case, often, there is an incompatibility between the partners to conceive: the woman and the man may have children, but not together.

## HOW TO DIAGNOSE INFERTILITY

If a couple suspects of having fertility problems the first step is to contact the gynecologist or the andrologist. The doctor will advise on the first examinations to undergo and will make a

diagnosis. All the clinical history of the couple has to be told to the specialist who, based on the information gathered, decides which analysis to prescribe. As an indication, the diagnostic path includes the following tests.

#### **FOR HER:**

- **hormonal tests**, to evaluate hormone levels in the blood, the regularity of ovulation and the biological age of the ovary;
- **ultrasound**, to examine the uterus, ovaries and ovulation. It allows, furthermore, to verify the possible presence of cysts and fibroids;
- **vaginal swab**, to search for common germs such as Candida and Chlamydia;
- **Pap smear**, to investigate possible alterations of the cells.

#### **FOR HIM:**

- **hormone analysis**, to assess the presence of any hormone deficiencies;
- **semen analysis**, or analysis of the seminal fluid, to have information on the number and shape of the sperm, the percentage of motile spermatozoa and characteristics of their motility;
- **culture of the sperm**, examination of seminal fluid to diagnose infections.

If these examinations have not been sufficient, further investigations will be required to the couple, in order to verify primarily abnormalities of the uterus for women and anatomical problems for men.

**IMPORTANT** A diagnosis of infertility causes suffering which inevitably has an impact on the couple life. But accepting the difficulties and knowing them is certainly a way to begin to overcome them. Not close yourselves into silence! Share this difficult time with your partner, family, and friends. It is not easy, but talk will help you live better your emotions and share them with those who know how to listen. It is crucial to act immediately and talk to the gynecologist or the andrologist. These specialists are able to provide valuable assistance and possibly direct you to centers that deal exclusively with infertility in the event that further investigations are needed and/or therapeutic interventions.

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