**Definition:**

Infertility is defined as a failure to conceive within one or more years of regular unprotected intercourse.

 **Classification:**

* There are two types of infertility
1. **Primary infertility :** primary infertility denotes couples who have never been able to conceive.
2. **Secondary infertility :** secondary infertility denotes indicates difficulty in conceiving after already having conceived.

**Incidence:**

30% female infertility

30% male infertility

20%mixed infertility cause

20% Unexplained infertility

**CAUSES:**

**MALE CAUSES:**

* Sperm count
* Obstruction in genital tract
* Structural defect
* Erectile dysfunction
* Mobility of sperm
* Volume of semen

**Male factors:**

**A. DEFECTIVE SPERMATOGENESIS**

1. Congenital: Due to undescended testes spermatogenesis is depressed.
2. Hypospadias
3. Thermal factor: Vericocele
4. Infection: Mumps, Orchitis damage the spermatogenesis
5. Gonadotrophin suppression: It happens in the malnutrition, heavy smoking and high alcohol consumption.

B. **OBSTRUCTION OF EFFERENT DUCT**

1. Gonococcal or tubercular infection
2. Surgical trauma during vasectomy.

**C. FAILURE TO DEPOSIT SPERM HIGH IN THE VAGINA:**

1. Erectile dysfunction
2. Ejaculatory defects such as premature retrograde or absence of ejaculation
3. Hypospadias.

D. **ERROR IN THE SEMINAL FLUID:**

1. Low fructose content
2. High prostaglandin content
3. Unusually low volume of ejaculation.

**FEMALE CAUSES:**

**1.Ovulation problems:**

* An hormonal imbalance: FSH or LH secretion
* Anovulation
* Polycystic ovarian disease
* Eating disorders such as anorexia or bulimia
* Stress
* Alcohol or drug use
* Intense exercise that causes a loss of body fat.

**2.FALLOPIAN TUBE DAMAGE:**

* Endometriosis
* Tubal infection
* Uterine fibroids
* Fallopian tube blockage

**Risk factors:**

* **Age**
* **Stress**
* **Smoking**
* **Over weight and over exercising**
* **Sexually transmitted**

**Diagnosis of Infertility:**

* Laproscopy
* Ultrasound transducer

**TREATMENT:**

* Artificial insemination
* In vitro fertilization
* Surrogacy
* Complimentary techniques
* **INTRAUTERINE INSEMINATION (IUI):**

IUI is a procedure in which a catheter is inserted through the cervix into the uterus to deposit a sperm sample directly into the uterus.

* **INVITRO FERTILIZATION( IVF):**

IVF is a process by which an egg is fertilized by sperm outside the body.

In Vitro= In glass.

* **INTRACYTOPLASMIC SPERM INJECTION(ICSI):**
* ICSI is the most successful form of treatment who are infertile.
* ICSI only requires one/single sperm which is injected directly into the egg and fertilized egg is transferred to uterus.

**To stimulate ovulation:**

**Drugs are:**

1. Clomophene citrate
2. Human menopausal gonadotrophins
3. Follicle stimulating hormone
4. Gonadotrophin releasing hormone analog
5. Bromocriptine.
* **FERTILITY RESTORATION SURGERIES:**
* Tissue removal: This surgery removes endometrial or pelvic adhesions with lasers or ablation.
* Tubal surgeries: If fallopian tubes are blocked or filled with fluid, tubal surgery improve chances of becoming pregnant.

**FEMALE INFERTILITY TREATMENT:**

* Treatment of female infertility consists of fertility restoration drugs, fertility restoration surgeries, Assisted reproductive technologies( ART) .
* Laparoscopic surgery is performed to remove adhesions and create a new tubal opening.
* Salpingectomy: It can improve chances of pregnancy with in vitro fertilization.
* Intrauterine insemination
* Invitro fertilization
* Zygote intrafallopian transfer( ZIFT) .
* Gamete intrafallopian transfer( GIFT)
* Intracytoplasmic sperm injection(ICSI)
* **Zygote intrafallopian transfer:**
* ZIFT is an ART designed to transfer the fertilized embryo into the fallopian tube instead of the uterus
* Here zygote is place in the fallopian tube through which it will reach into the uterus
* It is similar to IUF
* **Gamete intrafallopian transfer:**

GIFT involves transferring eggs and sperm into the women's fallopian tubes so fertilization occurs in the woman's body.