

Name : **Onyeigwe God'speace Chimezuru**

Matric no: 18/mhs02/162

Course: physiology

Department: Nursing

Physiology Assignment.

Testosterone

Testosterone is the key male sex hormone that regulates fertility, muscle mass, fat distribution, and red blood cell production. The testes secrete testosterone, which is necessary for proper physical development in boys. Testosterone is the hormone responsible for the development of male sexual characteristics. Hormones are chemical messengers that trigger necessary changes in the body. Females also produce testosterone, usually in smaller amounts. It is a type of androgen produced primarily by the testicles in cells called the Leydig cells. In men, testosterone is thought to regulate a number of functions alongside sperm production. These include:

sex drive

bone mass

fat distribution

muscle size, and strength

red blood cell

In males, testosterone is synthesized primarily in Leydig cells. ...

When testosterone levels are low, gonadotropin-releasing hormone (GnRH) is released by the hypothalamus, which in turn stimulates the pituitary gland to release FSH and LH. These latter two hormones stimulate the testis to synthesize testosterone. In males, testosterone is synthesized primarily in Leydig cells. ...

When testosterone levels are low, gonadotropin-releasing hormone (GnRH) is released by the hypothalamus, which in turn stimulates the pituitary gland to release FSH and LH. These latter two hormones stimulate the testis to synthesize testosterone.

Testosterone is produced by the gonads (by the Leydig cells in testes in men and by the ovaries in women), although small quantities are also produced by the adrenal glands in both sexes. It is an androgen, meaning that it stimulates the development of male characteristics. The hypothalamus and pituitary gland control how much testosterone the testes produce and secrete. ... Luteinizing hormone

(LH) stimulates testosterone production. If too much testosterone is produced, the hypothalamus alerts the pituitary gland to make less LH, which tells the testes to decrease testosterone levels.

Once synthesised, testosterone is secreted into the blood and carried to target cells in the male reproductive organs. Most of the testosterone is transported bound to a specific plasma protein called sex hormone binding globulin (SHBG). The remainder is termed free testosterone.

It is free testosterone that can be converted into DHT but it cannot be converted by aromatase into estradiol.

Both DHT and testosterone can bind to the androgen receptor but DHT binds with a greater affinity than unbound or unchanged testosterone.

Once bound to the androgen receptor, DHT or testosterone forms a complex that undergoes a structural change. This complex then moves into the nucleus of the cell and binds to specific nucleotide sequences of DNA which are termed hormone response elements.

This binding of the complex to the elements brings about changes in the transcription of various proteins mediated by specific genes, which produces the androgenic effects of the cells..

Male infertility

Male infertility refers to a male's inability to cause pregnancy in a fertile female. Male infertility is due to low sperm production, abnormal sperm function or blockages that prevent the delivery of sperm. Illnesses, injuries, chronic health problems, lifestyle choices and other factors can play a role in causing male infertility.

Symptoms of male infertility are

The main sign of male infertility is the inability to conceive a child. There may be no other obvious signs or symptoms. In some cases, however, an underlying problem such as an inherited disorder, a hormonal imbalance, dilated veins around the testicle or a condition that blocks the passage of sperm causes signs and symptoms.

Although most men with male infertility do not notice symptoms other than the inability to conceive a child, signs and symptoms associated with male infertility include:

Problems with sexual function – for example, difficulty with ejaculation or small volumes of fluid ejaculated, reduced sexual desire, or difficulty maintaining an erection (erectile dysfunction) Pain, swelling or a lump in the testicle area .Recurrent respiratory infections. Inability to smell . Abnormal breast growth (gynecomastia). Decreased facial or body hair or other signs of a chromosomal or hormonal abnormality . A lower than normal sperm count (fewer than 15 million sperm per milliliter of semen or a total sperm count of less than 39 million per ejaculate).

Causes of infertility are

1. Sperm Disorders

The most common problems are with making and growing sperm. Sperm may:

- . not grow fully
- . be oddly shaped
- . not move the right way
- . be made in very low numbers (oligospermia)
- . not be made at all (azoospermia)

2. Varicoceles

Varicoceles are swollen veins in the scrotum. They're found in 16 out of 100 of all men. They are more common in infertile men (40 out of 100). They harm sperm growth by blocking proper blood drainage. It may be that varicoceles cause blood to flow back into your scrotum from your belly. The testicles are then too warm for making sperm. This can cause low sperm numbers.

3. Retrograde Ejaculation

Retrograde ejaculation is when semen goes backwards in the body. They go into your bladder instead of out the penis. This happens when nerves and muscles in your bladder don't close during orgasm (climax). Semen may have normal sperm, but the semen cannot reach the vagina.

Retrograde ejaculation can be caused by surgery, medications or health problems of the nervous system. Signs are cloudy urine after ejaculation and less fluid or "dry" ejaculation.

4. Immunologic Infertility

Sometimes a man's body makes antibodies that attack his own sperm. Antibodies are most often made because of injury, surgery or infection. They keep sperm from moving and working normally. We don't know yet exactly how antibodies lower fertility. We do know they can make it hard for sperm to swim to the fallopian tube and enter an egg. This is not a common cause of male infert

5. Immunologic Infertility

Sometimes a man's body makes antibodies that attack his own sperm. Antibodies are most often made because of injury, surgery or infection. They keep sperm from moving and working normally. We don't know yet exactly how antibodies lower fertility. We do know they can make it hard for sperm to swim to the fallopian tube

and enter an egg. This is not a common cause of male infertility.

6. Obstruction

Sometimes sperm can be blocked. Repeated infections, surgery (such as vasectomy), swelling or developmental defects can cause blockage. Any part of the male reproductive tract can be blocked. With a blockage, sperm from the testicles can't leave the body during ejaculation.

7. Hormones

Hormones made by the pituitary gland tell the testicles to make sperm. Very low hormone levels cause poor sperm growth.

8. Chromosomes

Sperm carry half of the DNA to the egg. Changes in the number and structure of chromosomes can affect fertility. For example, the male Y chromosome may be missing parts.

Treatment

Treatment depends on what's causing infertility. Many problems can be fixed with drugs or surgery. This would allow conception through normal sex. It is advisable to contact a doctor when one suspects any of these symptoms.