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ASSIGNMENT

Write short notes on the following

1. Spermatogenesis
2. Testosterone
3. Semen
4. Male orgasm
5. Male infertility

SPERMATOGENESIS

Spermatogenesis is the process by which the male gametes called the *spermatozoa* (sperm) are formed from the primitive spermatogenic cells in the testes. It takes about **74 days** for the formation of sperm from a primitive germ cell. Throughout the process of spermatogenesis, the spermatogenic cells have cytoplasmic attachment with Sertoli cells. Sertoli cells supply all necessary materials for spermatogenesis through the cytoplasmic attachment. It consists **four** stages; The proliferation stage, the growth stage, the maturation stage and the transformation stage.

1. **The proliferation phase:** During the proliferative stage, spermatogonia divide by mitosis, without any change in chromosomal number. In man, there are usually seven generations of spermatogonia. The last generation enters the stage of growth as primary spermatocyte.
2. **The growth stage:** The primary spermatocytes grow into a large cell. Apart from the growth, there is no other change in spermatocyte during this stage.
3. **The maturation phase:** After reaching the full size, each primary spermatocyte quickly undergoes meiotic or maturation division, which occurs in 2 phases; **THE FIRST PHASE:** primary spermatocytes divide into secondary spermatocytes. **THE SECOND PHASE:** Each secondary spermatocyte undergoes second meiotic division resulting in two smaller cells called spermatids.
4. **The transformation stage:** Spermatids are transformed into matured spermatozoa, by means of spermiogenesis and released by spermiation.

Changes that take place during spermatogenesis include; condensation of nuclear material, formation of acrosome, mitochondria spiral filament and tail structures. Removal of extraneous cytoplasm.

Factors affecting spermatogenesis include; Sertoli cells, hormones, high body temperature, disease.

TESTOSTERONE

Testosterone is a hormone found in males and is produced in large quantity, it regulates fertility, muscle mass, fat distribution and red blood cell production. When levels of testosterone drop below level, it leads to erectile dysfunction and reduced bone mass and sex drive. Testosterone secretion starts at the 7th week of fetal life by fetal genital ridge. Fetal testes begins to secrete testosterone at about 2nd to 4th month of fetal life. In fetal life, testosterone secretion from testes is stimulated by human chorionic gonadotropin hormone, which is secreted by placenta.

In childhood, secretion of testosterone is approximate until 10 to 12 years of age. Testosterone secretion starts, increases rapidly at the onset of puberty. The secretion starts to decrease after 40 years and becomes almost zero at age 90.

Functions of testosterone

In general testosterone is responsible for the distinguishing characters of masculine body, muscle mass. The functions of testosterone is divided into two: functions in fetal life and adult life;

Functions in fetal life; sex differentiation in fetus, development of accessory sex organ, descent of the testes.

Functions in Adult life; it has effect on sex organs, it affects secondary sexual characters.

MODES OF ACTION OF TESTOSTERONE

Testosterone combines with receptor proteins, which then migrate to nucleus, binds with a nuclear protein and induces the DNA-RNA transcription process. In 30 mins, the RNA polymer is activated and the concentration of the RNA increases. The quantity of the DNA also increases. Testosterone primarily stimulates the protein synthesized in the target cell. Testosterone is converted to dihydrotestosterone in the target cells of some accessory sex organ. DHT combines with receptor proteins and the DHT-receptor complex induces the DNA-RNA transcription process. DHT receptor complex is more stable than testosterone receptor complex. In brain testosterone is converted to estrogen.