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QUESTION

Write short notes on the following

SPERMATOGENESIS

Spermatogenesis is the process by which **haploid spermatozoa** develop from germ cells in the **seminiferous tubules** of the testis. This process starts with the mitotic division of the stem cells located close to the basement membrane of the tubules. These cells are called **spermatogonia stem cells**. The mitotic division of these produces two types of cell. Type A cells replenish the stem cells, and type B cells differentiate into **primary spermatocytes**. The primary spermatocyte divides meiotically into two secondary spermatocytes each secondary spermatocyte divides into equal haploid **spermatids** by meiosis II. The spermatids are transferred into spermatozoa by the process of **spermiogenesis**. These develop into mature spermatozoa, also known as sperm cells. Thus, the primary spermatocyte gives rise to two cells, the secondary spermatocytes, and the two secondary spermatocytes by their subdivision produce four spermatozoa and four haploid cells.

Spermatozoa are the mature male gametes in many sexually reproducing organisms. Thus, spermatogenesis is the male version of **gametogenesis**, of which the female equivalent is **oogenesis**.

Spermatogenesis starts in the bottom part of seminiferous tubes and progressively cells go deeper into tubes and moving along it until its mature spermatozoa are deposited. The division happens a synchronically. If the tube is cut transversally one could observe different maturation states.

MALE INFERTILITY

This refers to a male's inability to cause pregnancy in a fertile female. In humans it accounts for 40-50% of infertility. It affects approximately 7% of all men. Male infertility common due to deficiencies in the semen, and semen quality is used as a surrogate measure of male fecundity.

CAUSES

Sperm Disorders;

The most common problems are with making and growing sperm. Sperm may not grow fully, may be oddly shaped, may not move the right way, may be made in very low number, may not be made at all.

Varicoceles; Varicoceles causes blood to flow back into your scrotum from your belly. The testicles are then too warm for making sperm. This can cause low sperm count.

Retrograde; this is when semen goes backwards in the body. They go into the bladder instead of out the penis.

Immunologic Infertility

Sometimes a mans body makes antibodies that attack his own sperm. They keep sperm from moving and working normally by making it hard for sperm to swim to the fallopian tube and enter the egg.

Hormones;

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

Chromosomes;

Sperm carry half of the DNA to egg. Changes in the number and structure of chromosomes ca affect fertility.