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**WRITE SHOT NOTE ON THE FOLLOWING**

SPERMATOGENESIS:

MALE INFERTILITY:

### **SPERMATOGENESIS:**

This can be defined as 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 called spermatogonial stem cells.

The mitotic division of these produce two types of cells. The type A replenishes the stem cells, and Type B, cells differentiate into primary and spermatocytes. The primary spermatocyte divides meiotically (Meiosis 1) into two secondary spermatocytes; each secondary spermatocyte divides into equal haploid spermatids by meiosis II. The spermatids are transformed into spermatozoa (sperm) 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.

Spermatogenesis takes place within several structures of the male reproductive system. The initial stages occur within the testes and progress to the epididymis where the developing gametes mature and are stored until ejaculation. The seminiferous tubules of the testes are the starting point of the process where spermatogonial stem cells adjacent to their inner tubule wall divide in a centripetal direction—beginning at the walls and proceeding into the innermost part or lumen—to produce immature sperm. Maturation occurs in the epididymis.

The location (testes/scrotum) is specifically important as the process of spermatogenesis requires a lower temperature to produce viable specifically  $1^{\circ}$ -  $8^{\circ}$  c lower than normal body temperature of  $37^{\circ}$  c.

## ➤ MALE INFERTILITY

Male infertility refers to a male's inability to cause pregnancy in a fertile female. Male infertility is common due to deficiencies in this semen, and semen quality is used as a measure of male fecundity.

**The males shown visit the hospital and talk to a doctor if they have the following symptoms;**

- a. A low sperm count or other problems with sperm
- b. Small testicles or swelling in the scrotum
- c. Undergone treatment for cancer
- d. A history of testicular, prostate or sexual problems

### **Causes of male infertility include the following**

- a. Problems with the delivery of sperm: this is caused due to sexual problems, such as premature ejaculation, certain genetic disease, such as cystic fibrosis, structural problems, such as a blockage in the testicle, or damage to the reproductive organs.
- b. Abnormal sperm production or function: due to undescended testicles, genetic defects, health problems such as diabetes or veins in the testes (varicocele) also can affect the quality of sperm
- c. Overexposure to certain environment factors such as pesticides and other chemicals, and radiation. Cigarette smoking, alcohol, anabolic steroids, and taking medications to treat bacterial, infections high blood pressure and depression can also affect fertility frequent exposure to heat, such as in saunas or hot tubs can raise body temperature and may affect sperm production.
- d. Damage related to cancer and its treatment, including radiation and chemotherapy. Treatment of cancer can impair sperm production sometimes severely.

## ➤ RISK FACTORS OF MALE INFERTILITY

- a. Alcohol use: Heavy alcohol use can decrease sperm count and motility
- b. Being overweight
- c. Being underweight
- d. Age
- e. Exercise issues- a lack of exercise contributes to obesity, which increase the risk of infertility.

## ➤ PREVENTION OF MALE INFERTILITY.

- a. Avoid drugs and tobacco use and drinking too much alcohol
- b. Avoid high temperature found in hot tubs and hot baths
- c. Limit medications that may impact fertility.
- d. Exercise moderately
- e. Avoid exposure to industrial or environmental toxins.