NAME: ADEGBOYE ADESEYE. O

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1. CYCLIC CHANGES IN THE CERVIX

Mucus membrane of the cervix also shows cyclic changes during different phases of menstrual cycle.

Proliferative phase

 During proliferative phase, the mucus membrane of cervix becomes thinner and more alkaline due to the influence of estrogen. It helps in the survival and motility of spermatozoa.

Secretory phase

During secretory phase, the mucus membrane of cervix becomes more thick and adhesive because of actions of progesterone.

CYCLIC CHANGES IN THE VAGINA

Proliferative phase

Epithelial cells of vagina is cornified. Estrogen is responsible for this.

Secretory phase

Vaginal epithelium proliferates due to actions of progesterone. It also infiltrated with leukocytes. These two changes increase the resistance of vagina for infection.

1. HORMONAL REGULATION OF THE MENSTRUAL CYCLE

Regulation of menstrual cycle is a complex process that is carried out by well-organized regulatory system. The regulatory system is a highly integrated system, which include hypothalamus, anterior pituitary and ovary with its growing follicle. In whole scenario, the growing follicle has a vital role to play.

HORMONES INVOLVED IN REGULATION

The regulatory system functions through the hormones of hypothalamo-pituitary-ovarian axis.

Hormones involved in the regulation of menstrual cycle are:

1. Hypothalamic hormone: GnRH
2. Anterior pituitary hormones: FHS and LH
3. Ovarian hormones: Estrogen and progesterone.

Hypothalamic Hormone- GnRH

GnRH triggers the cyclic changes during menstrual cycle by stimulating secretion of FSH and LH from anterior pituitary. GnRH secretion depends upon two factors.

1. External factors like psychosocial events, which act on hypothalamus via cortex and many other brain centers.
2. Feedback effects of ovarian changes via ovarian hormones.

Anterior Pituitary Hormones- FSH and LH

FSH and LH modulate the ovarian and uterine changes by acting indirectly via ovarian hormones. FSH stimulates the recruitment and growth of immune ovarian follicles. LH triggers ovulation and sustains corpus luteum.

Secretion of FHS and LH is under the influence of GnRH.

Ovarian Hormones-Estrogen and Progesterone

Estrogen and progesterone which are secreted by follicle and corpus luteum, shows many activities during menstrual cycle. Ovarian follicle secretes large quantity of estrogen and corpus luteum secretes large quantity of progesterone

Estrogen secretion reaches the peak twice in each cycle; once during follicular phase just before ovulation and another one during luteal phase. On the other hand, progesterone is virtually absent during follicular phase till prior to ovulation. But it plays a critical role during luteal phase.

Estrogen is responsible for the growth of follicles .Both the steroids act together to produce the changes in uterus, cervix and vagina.

Both the ovarian hormones are under the influence of GnRH, which acts via FSH and LH. In addition, the secretion of GnHR, FSH and LH is regulated ny ovarian hormones.