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**DEPARTMENT: NURSING**

**COURSE CODE: PHS 212**

**QUESTIONS:**

* BRIEFLY DISCUSS THE CYCLIC CHANGES IN ANY TWO OF THE FOLLOWING:

1. CERVIX b) VAGINA c) BREASTS

* EXPLICATE ANY ONE OF THE FOLLOWING:

1. MENSTRUAL CYCLE
2. HORMONAL REGULATION OF THE MENSTRUAL CYCLE

**CYCLIC CHANGES IN 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 estrogens. 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.

During the ovulation phase estrogenic secretion is increased. This increase is associated with characteristic changes in the cervical mucus, which increases in quantity and becomes watery, clear, and translucent. In view of these changes, “the water phase of the cervical mucus, it immediately precedes and coincides with the thermal shift, as determined by basal temperature recordings. But the cyclic changes in the cervix are not limited to the function of the glandular structures and to the physicochemical properties of the cervical mucus. The diameter of the cervical canal also undergoes cyclic changes and is larger during the proliferative phase than during the secretory phase. This also applies to the width of the uterine isthmus.

**CYCLIC CHANGES IN VIGINA**

In the course of the [reproductive cycle](https://en.wikipedia.org/wiki/Biological_life_cycle), the vaginal epithelium is subject to normal, cyclic changes, that are influenced by [estrogens](https://en.wikipedia.org/wiki/Estrogen): with increasing circulating levels of the [hormone](https://en.wikipedia.org/wiki/Hormone), there is proliferation of epithelial cells along with an increase in the number of cell layers. As cells proliferate and mature, they undergo partial cornification. Although hormone induced changes occur in the other tissues and organs of the female reproductive system, the vaginal epithelium is more sensitive and its structure is an indicator of estrogen levels

**PROLIFERATIVE PHASE**

Epithelia cells of vagina are certified. Estrogens are responsible for this.

**SECRETORY PHASE**

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

**HORMONAL REGULATION OF THE MENSTRUAL CYCLE**

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

The menstrual cycle is regulated by a complex hormonal system with positive and negative feedback mechanisms and changes in sensitivity of peripheral tissues. Four concepts appear to be fundamental:

1. Regular, pulsatile secretion of LHR is necessary to the functioning of the system
2. Regulation is to a great extent affected by the pituitary gland in response to changes in ovarian steroid levels
3. Changes in ovarian steroid levels are due to regulatory changes in receptivity to pituitary hormones, as well as to variations in enzyme activities
4. At the periphery, changes in hormonal impacts are accompanied by modifications of receptivity to steroid hormones.

The menstrual cycle is the most evident manifestation of an extremely complex phenomenon which concerns not only reproduction, but the general health of the individual. In the light of the most recent clinical acquisitions, the menstrual cycle can be described as follows:

1) Regular, pulsatile secretion by the hypothalamus of luteinizing hormone-releasing hormone (LH-RH), which, in turn, liberates follicle stimulating hormone (FSH) and luteinizing hormone (LH)

2) The FSH makes possible the ovarian action of LH, which, in turn, permits the synthesis of estradiol

3) Negative feedback of estradiol and inhibin on the hypophysis cerebri

4) Ovulation is caused by a peak level of LH, but is dependent on progesterone levels

5) Synthesis of progesterone by the corpus luteum

6) Negative biofeedback of progesterone at the hypothalamic level, and

7) At the endometrial level increase in the number of estradiol receptors during the follicular phase and decrease of cytoplasmatic progesterone receptors during the luteal phase. The discovery of the mechanism of the menstrual cycle has helped women with hypothalamic disorders by using a pump releasing LH-RH in a pulsatile fashion.