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PHARMACOLOGY

1.cyclic changes in the vagina

The most striking changes in the vagina, is the marked basal cell proliferation and thickening of the stratum granulosum during the follicular phase of the menstrual cycle during the proliferative or follicular phase of the cycle, which corresponds to the development of the ovarian follicles, the uterus showed growth of endometrial glands, stroma and endothelial cell proliferation with capillary sprouts. Shortly after ovulation and parallel to the formation of the corpora lutea, the endometrium enters the secretory or luteal phase, which is characterized by coiling of endometrial glands, glandular secretion and the differentiation of the spiral artery.

the vaginal epithelium is subject to normal, cyclic changes, that are influenced by estrogen: with increasing circulating levels of the hormone, there is proliferation of epithelial cells along with an increase in the number of cell layersAs 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.

The superficial cells exfoliate continuously and basal cells replace the superficial cells that die and slough off from the stratum corneum Under the stratus corneum is the stratum granulosum and stratum spinosum The cells of the vaginal epithelium retain a usually high level of glycogen compared to other epithelial tissue in the bodyThe surface patterns on the cells themselves are circular and arranged in longitudinal rows he epithelial cells of the uterus possess some of the same characteristics of the vaginal epithelium.

2. Cyclic changes in the cervix

CERVICAL mucus appears to have an important function in the process of human reproduction. In response to stimulation by estrogen, cervical glands produce increasing amounts of a characteristic mucoid secretion.At the peak of this secretory activity, prior to ovulation, these glands produce copious amounts of a thin, isotonic mucus which is easily penetrated by the sperm. 5 , 7, 15, 16 Progesterone, on the other hand, is known to bring about both quantitative and qualitative alterations in the cervical secretion. During the luteal phase of the menstrual cycle, cervical mucus has been shown to become scanty in amount, as well as viscous and cellular. During the progestational phase also, such properties as spinnbarkeit and crystallization of the cervical mucus, which characterize estrogen stimulation, are markedly reduced or absent and consequently sperm migration is inhibited. Since endogenous progesterone causes an inhibition of sperm migration through cervical mucus, exogenously administered progestins, as prescribed for oral contraception, might be expected to have a similar effect.

Hormonal regulation of menstrul cycle

The menstrual cycle begins with menstrual bleeding (menstruation), which marks the first day of the follicular phase.

When the follicular phase begins, levels of estrogen and progesterone are low. As a result, the top layers of the thickened lining of the uterus (endometrium) break down and are shed, and menstrual bleeding occurs. About this time, the follicle-stimulating hormone level increases slightly, stimulating the development of several follicles in the ovaries. Each follicle contains an egg. Later in this phase, as the follicle-stimulating hormone level decreases, only one follicle continues to develop. This follicle produces estrogen.

The ovulatory phase begins with a surge in luteinizing hormone and follicle-stimulating hormone levels. Luteinizing hormone stimulates egg release (ovulation), which usually occurs 16 to 32 hours after the surge begins. The estrogen level decreases during the surge, and the progesterone level starts to increase.

During the luteal phase, luteinizing hormone and follicle-stimulating hormone levels decrease. The ruptured follicle closes after releasing the egg and forms a corpus luteum, which produces progesterone. During most of this phase, the estrogen level is high. Progesterone and estrogen cause the lining of the uterus to thicken more, to prepare for possible fertilization.

If the egg is not fertilized, the corpus luteum degenerates and no longer produces progesterone, the estrogen level decreases, the top layers of the lining break down and are shed, and menstrual bleeding occurs (the start of a new menstrual cycle).

If the egg is fertilized, the corpus luteum continues to function during early pregnancy. It helps maintain the pregnancy.