Zangemeister's work regarding the etiology and clinical specifics of neuropathy during the pregnancy proved that it manifests in edema. As a result of a long-term work he proved that edema, arterial hypertension and proteinuria are the key diagnostic criteria for severe forms of hestosis. Those three symptoms are united in so called Zangemeister triad, and such prognostic mark plays an important role in the diagnosis of hestosis to this day. Besides that, he described the pupil phenomena during the eclampsie (narrowing and diluting). As the reason of the eclampsie, Zangemeister suggested the edema of the brain as a part of overall hydropsy. For prophylaxis, he recommended the restriction of consumption of liquid foods and physical work, especially the last three months; in case of expressed hydropsy he recommended bed rest, defined restrictions of salt and water, with regular body weight measurements taken.

On 3rd of February in 1930 Wilhelm Zangemeister unexpectedly died from heart attack. Contemporaries recalled him as a great clinician and scientist, and as an attractive, multi-layered personality, an open and devoted friend.

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Stages of development of the idea of the biological readiness of the female body for childbirth

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Abstract

The development of the concept of the biological readiness of the female body for childbirth, the "dominant of childbirth", reflects the formation of the definition of the onset of physiological childbirth, which is necessary for the prevention of premature birth and their complications for the mother and fetus.

Key words: biological readiness for childbirth, female body, dominant of childbirth.

The first (empirical) period of determining the readiness of the female body for childbirth was reflected in the first century BC by the ancient Greek physician Soranus of Ephesus, a representative of the methodological school of Asclepiades [2,9]. To determine the term of delivery, Soran Ephessky proposed to evaluate the condition of the cervix — its length, consistency and degree of disclosure by the method of bimanual vaginal examination.

The method is still relevant and is one of the main reasons for launching labor activity [3,4,8,9].

The main (second) stage of the formation of the scientific idea of the biological readiness of the female body for childbirth was the research of domestic scientists, physiologists and obstetricians-gynecologists in the XX century [8,9]. The development of this direction originates from the works of the scientific school of Academician Alexey Alekseevich Ukhtomsky, who formulated an interdisciplinary approach in 1923 in his program article "The dominant as a working principle of nerve centers" in the form of the doctrine of the importance of the dominant in physiology [10]. The principle of the dominant theory is that when exposed to any sufficiently strong and long-acting external stimulus that causes afferent impulses, a dominant focus of arousal is formed in the central nervous system, which simultaneously inhibits the formation of weaker foci of nervous arousal that are not directly related to it [8, 10]. The dominant focus of arousal contributes to the emergence of an adequate reflex and neurohumoral response to the stimulus that caused it. When the response to the stimulus is realized and its action ceases, the dominant focus of arousal fades and gives way to the formation of a new dominant focus of arousal, but it does not disappear without a trace and is deposited in the memory of a person with the possibility of re-occurrence [8, 10].

Based on the research of A. A. Ukhtomsky, a student of his scientific school, Ilya Arkadyevich Arshavsky, continued the development of the doctrine of the dominant and for the first time introduced it into medicine, and specifically into obstetrics, developing a definition of the "maternal dominant", which includes successive gestational, birth and lactation dominants [5,6,8].

The third stage-the concept of the gestational dominant was further developed in the works of the obstetrician-gynecologist Academician M. S. Malinovsky [6,8]. Under the conditions of an experiment on rabbits by I. A. Arshavsky and M. S. Malinovsky in 1957, it was revealed that various states of stress, such as starvation, anoxic conditions, inflammatory and allergic reactions, intoxication, blood loss during prolonged exposure form a dominant response that suppresses the gestational dominant and causes the development of abnormalities in the fetus or its premature birth [6]. Observations of the course of pregnancy in female rabbits showed that prolonged exposure to stress forms the dominant response to stress, which suppresses the gestational dominant and causes the development of abnormalities in the fetus or its rejection [6,8]. Based on the research of A. A. Ukhtomsky, a student of his scientific school, Ilya Arkadyevich Arshavsky, continued the development of the doctrine of the dominant and for the first time introduced it into medicine, and specifically into obstetrics, developing a definition of the "maternal dominant", which includes successive gestational, birth and lactation dominants [5,6,8].

At the fourth stage, from the point of view of the Soviet obstetricians-gynecologists I. I. Yakovlev, L. L. Levinson, L. I. Lebedev, it was confirmed that the timely start of labor and its physiological course is possible only with the formed birth dominant [7,8,12]. The degree of maturity of the generic dominant was assessed by the above-mentioned authors based on changes in the bioelectric activity of the brain in pregnant women. In the case of interoceptive stimuli of the genitals, the bioelectric activity of the brain was increased, and in the case of exteroceptive stimuli, the bioelectric activity of the brain was weakened, which was later interpreted as inhibition of a weaker stimulus [6,8]. If the generic dominant is immature, then instead of typical changes in the bioelectric activity of the brain, uncharacteristic dysrhythmias and potential fluctuations appear [8].

However, the term "birth dominant" refers to changes that occur primarily in the central nervous system and does not reflect the full range of changes in the body of a woman in labor before childbirth. That is why after a series of works [4,8,9,11,12] reflecting the entire spectrum of changes in the body of a woman before childbirth, a more modern term appeared — the biological readiness of the female body for childbirth. This term includes histochemical changes in the body of the woman in labor, and also explains the mechanisms

of activation of labor activity with a change in the role of hormonal and immunological reactivity of the female body.

In modern studies of the neurohumoral relationship between mother and fetus, the question of the reasons for the activation of the mechanism of labor on the part of the fetus has been studied in detail. The formation of the generic dominant is preceded by the release of fetal factor by the fetal epiphysis, which activates the release of corticotropin-releasing hormone (CRH) by the fetal hypothalamus, leading to the release of adrenocorticotrophic hormone (ACTH) by the pituitary gland, which then acts on the fetal zone of the adrenal cortex with the release of cortisol and surface dehydroepiandrosterone (DHEA-S) [3,4,11]. After the release of cortisol into the amniotic fluid, it reaches the water membranes, decidual tissues and myometrium with the initiation of destabilization of the lysosomes and the launch of the paracrine mechanism of the development of labor. When DHEA-S and fetal cortisol enter the placenta, it synthesizes CRH, which then enters the mother's blood plasma and initiates the development of a generic dominant in the mother's nervous system, manifested by increased drowsiness and slight memory impairment, which is associated with a decrease in the blood flow rate in the middle and posterior cerebral arteries from 56-147 ml/min in non-pregnant women to 44-118 ml/min [3, 11].

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