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SPECIFIC FEATURES OF CHRONIC TONSILLITIS DURING PREGNANCY

Abstract. The effect of chronic tonsillitis during pregnancy on the course and outcome of pregnancy, the effect on the fetus is considered. Against the background of chronic tonsillitis, pregnant women develop not only various pregnancy complications, but also a negative impact on the development of the fetus and newborn, therefore timely treatment and prevention of this pathology during pregnancy is necessary.

Key words: chronic tonsillitis, pregnancy, microbial flora.

Maternal and child health protection is reflected in the Strategic development plan of the Ministry of health of the Republic of Kazakhstan until 2021, the National concept of social development of the Republic of Kazakhstan until 2030, the Strategy "Kazakhstan – 2050: a new political course of the established state».

In the Republic of Kazakhstan, “The national model of social support for families with children” is represented by a system of measures aimed at stimulating the birth rate, increasing the prestige and authority of mothers with many children, supporting families with disabled children, supporting low-income families [1-3].

The comprehensive measures currently being taken in the country have had a positive impact on the demographic situation. Such measures include measures to improve the reproductive health of women, early detection of diseases, dispensary monitoring and their recovery; consultations on family planning and choice of contraceptive method, as well as measures to prepare for pregnancy.

The need for in-depth research and development of preventive measures aimed at minimizing the negative impact of chronic tonsillitis on the course and outcome of pregnancy is one of the indicators of the implementation of the provisions of the "National model of social support for families with children».

Chronic tonsillitis (CT) – a widespread pathology, occurs up to 44% of the adult population. The problem of chronic tonsillitis occupies a leading position in the structure of ENT-diseases. According to the world health organization, more than 100 somatic diseases of immunopathological profile with a leading infectious-dependent toxic-allergic mechanism are associated with chronic tonsillitis [5-7].

CT, as an extragenital chronic infection, affects not only the course and outcome of pregnancy, but also the development of the fetus, there is a direct pathogenetic relationship between the frequency of various complications of pregnancy and childbirth [4, 5]. In the literature when describing infection of the oropharynx may encounter the terms "pharyngitis", "tonsillitis" and "tonsillopharyngitis", with the first often refers to the defeat of the mucous membrane of the pharynx and tonsils. Currently, in foreign literature, both of these diseases are combined into one and widely use the term "tonsillopharyngitis", because of the close anatomical location and the similarity of the histological structure, inflammation of the tonsils rarely does without inflammation of the mucous membrane of the pharynx and vice versa [6].

Based on the above, the identification of the role of chronic inflammatory diseases of the oropharynx in the course and outcome of pregnancy is an urgent problem of modern medicine. Most researchers believe that the occurrence of CT is associated with a violation of immunobiological processes in the tonsils of the palatine, which affects the protective and adaptive mechanisms of lymphadenoid tissue and

reduces its resistance to infection. Palatine tonsils are a reflexogenic zone, which has numerous connections with the central nervous system and various internal organs. The structure of the nervous apparatus of the palatine tonsils includes almost all known types of extra-and interoreceptors that perceive mechanical, thermal, chemical, osmo-and barometric, as well as pain stimuli. Receptors in the Palatine tonsils are represented by V and IX pair of cranial nerves, which are mixed, that is, contain both afferent and efferent fibers. Nerve endings occur in the parenchyma of the tonsils, and in the epithelium, and it is very important to note the presence of nerve plexus and chemoreceptors, located submucosally near the lacunas, from which pathological impulses can originate in inflammatory processes in the latter. In CT, the pathological process involves primarily the afferent link of the nervous apparatus of the tonsils, so with angina and exacerbations of tonsillitis, the palatine tonsils become not only the "gate" of infection, but also the foci of pathological impulses [9].

Studies of single nucleotide polymorphisms (single nucleotide polymorphism, SNP) for their association with a high probability of the development of a particular pathology are becoming increasingly popular. The association of C-allele polymorphism (T280M) *CX3CR1* with the possibility of CT is found. The above data suggest the possibility of multifactorial nature of the disease [7-9].

As shown by the research of scientists in the analysis of endotoxicosis in 444 patients of which 116 with chronic tonsillitis, the dependence of the nature of endotoxemia on the nosological form of pathology was established. This is reflected in the compensatory-protective reactions of the body depending on the level of damage to its tissues by toxic agents, which is associated with violations of the processes of lipoperoxidation on cell membranes and insufficient functional activity of antioxidant enzymes. Analysis of these studies showed that in pregnant women with HT were observed following mechanisms of damage of the biomembrane as a result of perincioli POL: first - polymerization, and aggregation of biomolecules; second, the oxidation of amino acid residues of membrane proteins, loss of enzyme activity, which leads to a decrease of catalase activity of blood; third, the violation of hydrophobicity with the increase of the permeability of phospholipid bioloy. Having studied the causes of process disorders, scientists have come to the important conclusion that modern therapy of chronic pathological processes should use natural and synthetic antioxidants [10]. Scientists have found that one of the causes of miscarriage and miscarriage are chronic diseases of ENT organs, among which a significant role is played by chronic tonsillitis. Monitoring of the course and outcome of pregnancy in 217 women with preterm birth, it was found that most of them had a high incidence of ENT diseases, namely, often encountered acute 21.7% and chronic tonsillitis 17.4%. In 47.8% cases of preterm births, 33-37 weeks of gestation were observed. This indicates that in the terms of 37-38 weeks of gestation there is a low titer of antistreptococcal antibodies in the serum of the mother and the late transplacental transmission of matein immunoglobulins observed in these terms explains the high incidence of septic diseases of newborns [11].

According to the study of N. V. Volchok and O. G. Drazhina, CT is often combined with genital and extragenital inflammatory processes, which requires careful preparation for pregnancy. Microbial spectrum according to the results of sowing from the pharynx were as follows: alpha-hemolytic Streptococcus viridans – 20 pregnant women (67%), Candida albicans – 4 women (13%), Neisseria species – 3 women (10%), Streptococcus pneumonia – 3 women (10%), Staphylococcus aureus – 2 women (7%), Enterobacter cloacae – 2 women (7%), Klebsiella pneumoniae – 1 woman (3%), Staphylococcus epidermidis – 1 woman(3%).

According to the results of sowing from the throat, in pregnant women with CT, alpha-hemolytic Streptococcus viridans is more common (in 67% of cases). According to the sensitivity of the identified microflora to AB drugs, the authors recommended to start treatment of chronic tonsillitis with cephalosporins empirically, when receiving the results of sowing, correction of AB therapy is possible [12].

Currently, in the Republic of Kazakhstan there is no certain tactics of management of pregnant women with CT, as not all therapeutic measures can be carried out to a pregnant woman because of the risk of toxic effects on the fetus. In studies of the I. V. Dolina, it was found that in pregnant women with CT in the gaps was most prevalent pathogens (a total of 81.25% - 26 patients) and opportunistic (18.75 per cent in 6 patients) microflora. This indicates a strict selection of antibacterial drugs, taking into account the sensitivity of the isolated microbial flora. Also of great importance is the local aseptic therapy and timely sanitation of the oral cavity [13].

Distribution of sensitivity of the revealed microorganisms to antibacterial preparations

Group of antibiotics	Str. viridans n = 20	Str. pneumonia n = 3	Staph. epidermidis n = 1	Staph. aureus n = 2	Ent. Cloacae n = 2	Kleb. pneumonia n = 1
B-lactam: **penicillins appointment in pregnant women – allowed**	6	1	1	1	–	–
Cephalosporins **appointment in pregnant women – allowed**	7	2	1	2	2	1
Aminoglycosides **appointment in pregnant women – not allowed**	1	1	1	1	2	1
Macrolides **appointment in pregnant women – allowed**	7	3	1	2	–	–
Lincosamides **appointment in pregnant women – not allowed**	4	1	1	1	–	–
Tetracyclines **appointment in pregnant women – not allowed**	4	1	1	–	2	1
Glycopeptides **appointment in pregnant women – allowed in II, III trimesters**	3	1	1	–	–	–
Quinolones/ftorquinolones **appointment in pregnant women – not allowed**	8	1	–	2	2	1
Oxazolidinones (linezolid) **application is possible if the expected benefit to the mother exceeds the potential risk to the fetus**	–	–	–	2	–	–

In recent years, the most interesting is the study of the features of human microbiota. Studies indicate the relationship of microecological intestinal, vaginal, and nasopharyngeal biocenosis in the composition of the microbiome of humans. According to research, more than 10 thousand species of various microorganisms cohabit in the human body. 95% of microbiome bacteria belong to the species inhabiting the oral cavity. Thus, in women with vaginal microbiota disorders, intestinal dysbiosis and chronic diseases of the nasopharyngeal biotope are more often detected, which in turn contributes to the chronization of the inflammatory process in the pelvic organs, treatment inefficiency, an increase in the risk of an adverse pregnancy outcome and a decrease in the quality of life [14].

The results of American studies show that the placenta carries a microbe, which mainly consists of non-pathogenic flora: Firmicutes, Tenericutes, Proteobacteria, Bacteroidetes and Fusobacteria phyla. This composition of the placental microbiome is most similar to the composition of the oral microbiota of non-pregnant women. In the placenta, several types of microorganisms of the oral cavity were found, including *Prevotella tannerae* (it occurs on the crevices of the gums) and non-pathogenic species *Neisseria* (on the surface of the oral mucosa). Special similarity of the microbiota of the placenta detected composition of the microbiota is taken from the tongue, tonsils and magdesieva of the splits obtained from the oral cavity of non-pregnant women. Most of the taxa detected in the placenta using DNA technology are not found in the genitourinary tract, and are part of the microbiota of the oral cavity. Some of these oral microbes such as *Fusobacterium nucleatum* (gram-negative oral anaerobic), can hematogenously penetrate into the vascular endothelium during placentation as a result of changing the permeability, and thus act as "activator" pathological influence of other microorganisms, such as *Escherichia coli*. The available data indicate that placental microbiome probably occurs due to hematogenous spread of microorganisms of oral microbiota during early vascularization and placentation in the first trimester of pregnancy [15-19].

Canadian scientists have recently suggested that the maternal microbiota contributes to a smooth pregnancy and that microbiota dysbiosis can lead to premature birth. The vaginal microbiome and its Lactobacillus species participate in the function of the "vaginal filter", preventing the spread of pathogens ascending into the uterine cavity. It is assumed hematogenous spread of oral bacteria in the uterus. Thus, the maternal microbiome can play both a protective and causal role in the occurrence of spontaneous premature birth [20].

Scientists from Canada argue that recent advances in sequencing and metagenomic analysis have shown that the composition of the microbiome in various niches: oral, vaginal, intestinal and even the placenta, affect the course and outcome of pregnancy [21].

In the study of the relationship of oral microbiota and adverse pregnancy outcome, scientists confirm the spread of pathogenic bacteria, such as: *fu. Nucleatum* , *po. Gingivalis* , *fi. Alocis*, *c. Rectus* etc., who are potential participants in adverse pregnancy outcomes. The validity of the association between oral disease and adverse pregnancy outcomes is likely to include several pathways: 1) hematogenous spread (bacteremia) of pathogenic periodontal microorganisms; 2) hematogenous spread of multiple inflammatory mediators that are generated by the host and / or fetus immune response to pathogenic bacteria; and 3) possible oral transmission of the microbial pathogen followed by colonization in the vaginal microbiome as a result of sexual practices. American scientists came to such conclusion [22-25].

Conclusion. Thus, summing up, all of the above leads to the conclusion that pregnant women with chronic tonsillitis form a risk group during pregnancy and many somatic disorders and require increased attention from both otolaryngologists and doctors of other specialties. It is necessary to comprehensively consider the pathology of chronic tonsillopharyngitis in pregnant women, to conduct a thorough diagnosis and targeted therapeutic measures to eliminate exacerbations and complications of this pathology, as well as it is important to carry out prevention during pregnancy. Only such a comprehensive approach can reduce the number of complications in pregnant women with chronic tonsillitis.

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ЖҮКТІЛІК КЕЗІНДЕГІ СОЗЫЛМАЛЫ ТОНЗИЛЛИТ АҒЫМЫНЫҢ ЕРЕКШЕЛІГІ

Аннотация. Жүктілік кезеңінде созылмалы тонзиллиттың жүктілік кезінде және нәтижесіне әсер етуі ұрыққа әсер етеді. Созылмалы тонзиллит аясында, жүкті әйелдер әртүрлі жүктілік асқынуларын ғана емес, сонымен қатар ұрық пен нәрестенің дамуына теріс әсерін тигізеді, сондықтан жүктілікті уақытында емдеу және осы патологияның алдын-алу қажет.

Түйін сөздер: созылмалы тонзиллит, жүктілік, микробтық флора.

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ОСОБЕННОСТИ ТЕЧЕНИЯ ХРОНИЧЕСКОГО ТОНЗИЛЛИТА ПРИ БЕРЕМЕННОСТИ

Аннотация. Рассмотрено влияние хронического тонзиллита при беременности на течение и исход беременности, воздействие на плод. На фоне хронического тонзиллита у беременных женщин развиваются не только различные осложнения беременности, но и отрицательное влияние на развитие плода и новорожденного, поэтому необходимо своевременное лечение и профилактика данной патологии во время беременности.

Ключевые слова: хронический тонзиллит, беременность, микробная флора.

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