Helminthiasis in pregnancy

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Abstract: This article discusses the course of helminthiasis in pregnant women, the effect of helminth infestation on the course of pregnancy and the fetus, and also indicates the drugs intended for deworming pregnant women.

Keywords: helminthiasis, ascariasis, enterobiosis, pregnancy

Relevance

The relevance of this topic is due to the fact that helminthiasis is an important and common disease, which almost every person has become infected at least once in their life. According to the World Health Organization (WHO), more than 4.5 billion people are affected by parasitic diseases

in the world. At least 25% of the world's population suffers from helminthic invasions. On the territory of the Russian Federation, there is an annual incidence of more than 1.5 million people.

Purpose

To assess how much the issue of helminthiasis during pregnancy has been studied to date; identify if there are regulatory documents.

Materials and methods

Literature searches have been carried out over the past 10 years, with PubMed and Elibrary serving as the primary databases. 10 sources of literature were analyzed, on the basis of which a comparative analysis was carried out.

Introduction

An active increase in helminth infection is mainly observed in developing countries with low socio - economic living standards. But, nevertheless, the issue of helminthiasis is relevant for developed countries as well. In the Russian Federation, the growth of this disease is associated with an increase in the number of domestic animals in people living in urban apartments, and the growth is due to high environmental pollution, low awareness and underestimation of the negative impact of helminthiasis on the human body, including the body of a pregnant woman [7]. Many people lack habits such as hand washing, careful handling of raw vegetables and fruits, which are the main determining factors for the high prevalence of helminthiasis. Therefore, it is very important to educate the population in order to ensure the long-term and sustainable spread of helminthiasis [8].

The human body is a favorable environment not only for habitation, but also for the reproduction of helminths. The human body is parasitized by 3 main classes: nematodes, trematodes and cestodes [7].

The very moment of infection and the further stay of helminths in the host's body remains unnoticed. This is due to the fact that when helminths enter the body, they suppress T-cell immunity and adsorb host proteins on their surface, resulting in a kind of defense against the host's immune system [7].

The body of a pregnant woman is an equally favorable environment. It should be noted that it is he who will be preferred by the helminth to any other organism [3]. During pregnancy, there is a change in the immune status of the pregnant woman, at this moment the immune system is aimed at combating inflammation, so helminths (like the fetus itself) are not recognized as antigenically foreign organisms [3].

In the modern literature, information on the spread of helminthiases among pregnant women is scarce [5]. Nevertheless, on the basis of the available information, it can be concluded that most often pregnant women are infected with ascariasis (15–35%) and enterobiasis (2–12%) [6].

Clinical manifestations

Different types manifest themselves with characteristic symptoms that distinguish them from each other. But, nevertheless, their common clinical signs can be distinguished [7].

All common clinical symptoms can be subdivided into the following syndromes [7]:

1) *Dyspeptic syndrome* - pain in the epigastric region of unclear etiology, nausea, vomiting.
2) *Anemic syndrome* - iron deficiency anemia, not amenable to drug therapy, in addition, as the gestational age progresses, IDA increases; B12 - deficiency anemia associated with the fact that in the process of vital activity helminths absorb a large amount of vitamins, including B12.
3) *Intoxication syndrome* - weakness, drowsiness, dizziness; arterial hypotension associated with the influence of the waste products of parasites on the nervous system of a pregnant woman.

These symptoms are regarded by a pregnant woman as manifestations of toxicosis in the first half of pregnancy [3].

Distinctive manifestations of *ascariasis* are the development of bronchial asthma (due to the fact that ascaris larvae can enter the pulmonary circulation and airways) and intestinal obstruction (due to the fact that mature individuals can lead to blockage of the intestinal lumen) [7]. In addition, ascariasis is characterized by damage to the biliary system, since during pregnancy the level of hormones (estrogens and progesterone) increases, affecting the sphincter of Oddi, which ensures the migration of ascaris into the bile ducts [10].

Enterobiasis is characterized by itchy skin in the anal area, so a pregnant woman's sleep is disturbed and her health worsens [2].

The course of pregnancy

Helminthiases have an adverse effect on the course of pregnancy [7]. 1 trimester of pregnancy may be accompanied by early toxicosis, threatened abortion and spontaneous abortion [6]. In the 2nd trimester, the likelihood of developing placental insufficiency prevails. In the 3rd trimester, fetoplacental insufficiency, fetal growth retardation and intrauterine hypoxia are also possible [6, 7].

In the postpartum period, bleeding is noted that is not associated with obstetric pathology. Bleeding is associated with the fact that helminthic invasion leads to a change in the enzymatic function of the liver, which affects the blood coagulation system [7].

Influence on the fetus

In the study of Bodny E.I. the clinical situation of ascariasis in a pregnant woman is considered. This observation confirmed the hypothesis of the possibility of a transplacental route of infection with ascariasis [1].

The effect on the fetus in ascariasis is due to the effect of an alpha-chemotrypsin and trypsin inhibitor, which have embryotoxic and teratogenic properties [5].

Helminthiases lead to a deficiency of vitamins with antioxidant properties (vitamins A, E, C) [3]. Thus, with their lack, the body's resistance to negative influences decreases and, as a consequence, a violation of the laying of the systems and organs of the fetus is observed [5].

Do not exclude the possibility of the passage of ascaris larvae with blood flow through the placental barrier, which leads to the development of intrauterine infection. The lungs of the fetus are the most vulnerable, therefore, the development of intrauterine pneumonia is most often observed [5].

Diagnostics

Diagnostics is aimed at identifying the pathogen (ELISA for detecting antibodies to ascaris antigens; scraping from perianal folds to detect pinworm eggs) and at identifying and assessing the severity of organ-specific lesions (ultrasound of the liver, pancreas, EGD, liver scintigraphy) [3,7].

Therapy

At the moment, there are a large number of anthelmintic drugs, but most of them are contraindicated in pregnancy. Deworming is accompanied by the death of parasites, which leads to the development of severe toxic complications, therefore, the use of anthelmintic drugs should be combined with the use of laxatives in order to remove dead parasites from the intestines.

The combined use of anthelmintic drugs with vitamins A, C, E, with preparations of folic acid and iron is recommended [5].

Drugs that do not interfere with the normal course of pregnancy include piperazine adipate. Its advantage lies in the fact that this drug paralyzes the muscles of nematodes, that is, peristalsis contributes to their exit from the body of a pregnant woman. In addition, it should be noted that

piperazine adipate does not kill parasites, but paralyzes them, so their decay products will not be absorbed into the bloodstream and cause the development of toxic complications [7].

In foreign literature sources, there are studies that consider the use of a drug such as Praziquantel by pregnant women. However, surveillance to identify any adverse effects of treatment is still ongoing [9].

Conclusion

Analysis of literature sources showed that the presence of helminthiasis in pregnant women is the cause of severe complications during pregnancy, such as toxicosis of the first half of pregnancy, placental insufficiency, spontaneous abortions at different gestational periods, chronic fetal hypoxia, developmental delay and premature birth. In addition, to date, a clear algorithm for managing patients in this category has not been developed. First of all, this is due to the lack of clinical recommendations in obstetrics and gynecology on the management of pregnant women with helminthiasis, and there are no sections on the management of pregnant women and their delivery in clinical guidelines and research studies for infectious disease doctors and helminthologists. Therefore, we consider the problem of helminthiasis in pregnant women to be relevant and controversial today.

No third party interests.

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