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USE OF ENTEROSGEL IN COMPLEX PREVENTION OF FETOPLACENTAL DYSFUNCTION IN PREGNANT WOMEN AFTER SYPHILIS

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Summary. *The article presents information on the use of Enterosgel in comprehensive prevention of placental insufficiency in women who have had syphilis.*

Key words: *syphilis, pregnancy, fetoplacental insufficiency.*

It is known that one of the tasks of modern obstetrics is reduction of perinatal morbidity and mortality, including those caused by chronic placental insufficiency.

The last decades of the twentieth century were distinguished by growth of syphilis incidence among the population, the percentage of women of reproductive age being 60-66%, most of them planning a pregnancy in the future [1, 6]. It is well-known that women who suffered from syphilis in the past, are at high risk of obstetric and perinatal diseases which manifests itself in the form of deconditioning in the mother-placenta-fetus system, violations of the fetus state, its intrauterine growth retardation [1, 2, 3, 6]. The relevance of the problem studied is also caused by lack of follow-up of further physical and mental development of children born to women who earlier suffered from syphilis [1, 6].

The mother-placenta-fetus system is the only functional system forming immediately after conception. This system is aimed at maintaining optimal conditions of development of an embryo and then a fetus in the mother's body and is associated with complex and interrelated adaptation processes [5, 7]. Any disease of the mother (gestational or extragenital pathology) can cause changes in homeostasis of the functional mother-placenta-fetus system. Various disorders of the state of mother-placenta-fetus system, their frequency, nature and severity of complications for mother and fetus as well as disorders of placenta function depend on gestational age, nature and severity, duration, effects of damaging factors, the stage of fetal development and placental expression of compensatory-adaptive capacity in this system [5, 7]. Chronic placental insufficiency (CPI) plays the key role in the development of perinatal pathology as a manifestation of adaptation processes violation in the mother-placenta-fetus system. Development of placental insufficiency accompanies practically all gestational complications. CPI is detected in 3-4% healthy women with uncomplicated pregnancy, and at its various pathologies the frequency is from 24 to 46% [1, 5, 6, 7]. Acute and chronic infection occupy the leading place among the factors of placental insufficiency, in more than 60% their course is accompanied by development of the latter. Syphilitic infection is the cause of the entire spectrum of antenatal pathology: intrauterine fetus infection, deficiencies of its development, dysfunction in the mother-placenta-fetus system, manifested by violation of utero-placental circulation and elimination of separate placenta parts from the circulation causing disorders of intrauterine development, intrauterine growth retardation syndrome (IURS), miscarriages, fetal death and stillbirths [2, 3, 4, 8]. It is proved that placental tissue damage caused by immune complexes (IC), which could accumulate on the placenta and cause immune inflammation, is an important mechanism of placental insufficiency formation in infections [3, 4, 8]. IC composition may vary depending on the nature of the adverse effect, and their fixation on the membrane formations of the placenta reduces its compensatory and adaptive reactions.

IC presence in the placenta is accompanied by focal damage of syncytiotrophoblast and vascular endothelium, massive fibrinoid deposits and lymphocytic infiltration in the damage areas, with the development of circulatory disorders and necrotic processes in the surrounding tissues. Free IC in the maternal blood circulation are found in low concentrations, as most of them are bound by reticuloendothelial system cells, endothelial cells and macrophages. In case IC concentrations in the blood are elevated, they are deposited in the placenta and intestine [3, 4, 8].

In this regard, homeostasis disorders of pregnant women make necessary etiotropic treatment with enterosorbents that contribute to binding and excretion of circulating immune complexes by means of adsorption, absorption and complex formation.

Study objectives: to reduce the incidence of perinatal complications in women after syphilis infection on the basis of improvement the basic therapeutic measures using Enterosgel.

Material and methods

To achieve this goal, a comprehensive clinical, laboratory and functional study was conducted in 60 women, which were divided into the following groups: I group- 30 pregnant women who had been treated from syphilis and received conventional treatment to prevent the development of fetal pathology;

II group- 30 pregnant women who had had syphilitic infection and underwent the proposed course for prevention of obstetric and perinatal complications.

The range of conventional therapy included drugs improving uterus-placental-fetal circulation, drugs normalizing metabolism and protein metabolism. The proposed technique included additional use of paste Enterosgel at a therapeutic dose - 1 tablespoon (15g) three times a day on weeks 10-12 and 18-19 of pregnancy. These terms were selected as the most critical and corresponding to the time of the beginning of formation and peak activity of fetoplacental complex. We have chosen Enterosgel in connection with his ability to remove (membrane capillaries in the villi of the intestinal mucosa) various products of metabolism and circulating immune complexes from the blood without penetrating the endothelium mucosa, resulting in renewed monocyte-macrophage ability to excrete antibodies from the body, thereby preventing formation of new IC. In our opinion, all this can be the basis for the use of this drug in pregnant women with earlier syphilis infection to prevention of perinatal complications. The complex of the studies conducted included clinical, functional and statistical methods. Control correction was carried out by determination of immune system parameters (Ig G, Ig M, CIC, C3 complement component) in the blood serum and dynamics of utero-placental and fetal-placental blood circulation in the mother-placenta-fetus system in pregnant women of the comparison groups before and 21 days after prophylactic treatment.

Results and discussion

In the group of pregnant women receiving Enterosgel within preventive therapy, the gestation course was more favorable, with less complications of gestational period than in the comparison group. In the pregnant women of group II, compared with women of group I polyhydramnios was 3.6 times rarer, frequency of the threat of pregnancy termination being 1.3 times lower; hypochromic anemia was 1.4 times less frequent, with preeclampsia being 1.5 times less frequent. Enterosgel application contributed to reduction in the incidence of perinatal injury: frequency of intrauterine hypoxia in the group II decreased by 3 times, 2.9 times less often was IURS syndrome. In the group II, than the frequency of cesarean operation was 1.5 times lower, 2.4 times lower was a necessity of emergency operative

delivery. Labor complications were more rarely observed in women receiving Enterosgel: pathological delivery – 1.8 times, frequency of prenatal amniorrhea – 2.5 times, bleeding in the placental and early postpartum period- 3.4 times, labor abnormality- 1.3 times less frequent. Favorable pregnancy course and outcome affected the health and adaptation abilities of the neonates. Apgar score at minute 1 and 5 was significantly higher ($p < 0.05$) in women treated with Enterosgel ($6.89 \pm 0.08/7.67 \pm 0.12$) vs. group I ($6.5 \pm 0.24/7.07 \pm 0.19$). An increase in weight and growth in the neonates of group II versus group I - $3378.52 \pm 5 \text{ g} / 52.41 \pm 0.48 \text{ cm}$ vs $3316 \pm 39.8 \text{ g}/50.23 \pm 0.52 \text{ cm}$.

The following dynamics of the immune system values is observed in pregnant women with earlier syphilitic infection taking Enterosgel as prophylaxis.

Table. Immune system values in pregnant patients of groups 1 and 2

Immune system values	Group 1	Group 2
IgM, g/l	$1,38 \pm 0,05$ $1,2 \pm 0,04$	$1,21 \pm 0,05$ $1,16 \pm 0,03^*$
IgG, g/l	$16,59 \pm 0,4$ $15,56 \pm 0,5$	$17,2 \pm 0,06$ $14,68 \pm 0,4^*$
C3 complement component, g/l	$1,07 \pm 0,03$ $0,83 \pm 0,01$	$0,75 \pm 0,03$ $1,11 \pm 0,04^*$
CIC, absorbance unit	$45,83 \pm 1,3$ $39,82 \pm 1,1$	$47,42 \pm 1,0$ $38,04 \pm 0,66^*$

Note: * - the value corresponds to the control one after taking Enterosgel.

After a course of preventive therapy in pregnant women taking Enterosgel, level of peripheral vascular resistance in utero-placental and fetal-placental blood flow was lower than that of women not treated with this enterosorbent. The course of preventive therapy including Enterosgel stimulated decrease in peripheral vascular resistance in microvasculature of the fetal part of placenta and the uterine arteries in pregnant patients of group II ($p < 0,01$), while the parameters named were lower than the corresponding values in patients of group I ($p < 0.05$).

Thus, Enterosgel use improves circulation in the mother-placenta-fetus system.

Conclusions

Thus, Enterosgel administration in pregnant patient of placental insufficiency risk group with earlier syphilitic infection allows normalizing adaptation processes in the mother-placenta-fetus system and promotes birth of more viable children.

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