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IMMUNOLOGICAL CRITERIA OF PLACENTAL INSUFFICIENCY

Abstract. The studies established the immune system quantitative and functional parameters changes in III trimester of pregnants, women in childbirth, postpartums and newborns with placental insufficiency. The imbalance of lymphocytes subpopulations indicators, increase of early activation and functional cytotoxic activity of immune cells in the systemic and local level were revealed. These changes specify the immunoregulatory mechanisms violations in the mother-placenta-fetus system in case of placental insufficiency and necessity for appropriate correction.

Keywords: placental insufficiency, lymphocytes subpopulation profile, perforin.

A unique relationship between mother and fetus is established during pregnancy. During gestation process, the fetus develops its own immune competence, and the mother's organism with the help of utero-placental complex enhances the effect of adaptation programs that will eventually allow two alien organisms – maternal and fetal to coexist [1]. Participation of the mother's immune system in controlling the gestational process is doubtless, a woman's immune system undergoes significant changes at physiological pregnancy, which are based on the formation of gestational immunosuppression [2, 3].

The condition of the immune system is one of the important criteria of usefulness of functional homeostatic pregnancy mechanisms that ensure a dynamic balance in the mother-placenta-fetus [4]. Pregnancy is characterized by the appearance of fetal antigens that define a particular type of immune response, the population composition of immunecompetent cells and their functional activity. At each stage of gestation there is a certain quantitative level of populations and subpopulations of lymphocytes that reflects a consistent system adaptation to the severity of the antigenic load [5].

As a result of the development of immunological relationship between mother and fetus, the placenta becomes immunologically privileged tissue. Trophoblast also serves as an immunosorbent, connecting antibodies (immunoregulators) and setting the immune camouflage, which blocks efferent link of the immune response. By 10 weeks of pregnancy, the fetus becomes an immunological partner of the mother. This symbiotic relationship leads to the development of immunological imprinting in the mother's organism, which remains for a lifetime. After establishing the immunological symbiosis between mother and fetus, the system becomes extremely resistant to adverse immunologic effects. Hormonal and other events that are programmed at the end of pregnancy, lead to rupture of the immunological symbiosis [6].

The aim of the research is to study the changes in immunological parameters in pregnants, women in childbirth, postpartums and newborns with placental insufficiency.

Material and methods. In order to study the characteristics of homeostasis in the mother-placenta-fetus with placental insufficiency (PI) 2 groups were identified – the main and control groups. The control group consisted of 30 healthy women of childbearing age with physiological pregnancy at 38-41 weeks of pregnancy (III trimester), 30 women in childbirth, 30 postpartums and 30 newborns with Apgar scores of 8-9 points. The main group included women with pregnancies complicated placental insufficiency (III trimester – 30), 30 women in childbirth, 30 postpartums and newborns who underwent intrauterine