ROLE OF CYTOKINES IN THE REGULATION OF PHYSIOLOGICAL PREGNANCY

[1]Turdyeva D. O.,
[1]Khamdamov B. Z.,
[2]Masaidova I. B.
[1]Bukhara State Medical Institute, [2]Institute of Human Immunology and Genomics of the Academy of Sciences of the Republic of Uzbekistan

Cytokines are traditionally the subject of special attention of researchers dealing with the problems of reproductive immunology, which is associated with their participation in the implementation of virtually all stages of the gestational process. Moreover, during pregnancy, the importance of certain factors changes due to the peculiarities of the stages of placenta formation and changes in the population composition of cytokine-producing cells in the dynamics of the gestational process. The aim of the study is to carry out a comparative analysis of cytokine production in physiologic pregnancy depending on the gestational age.

Material and methods. We examined 77 women with physiologic pregnancy: 25 women in the I trimester of pregnancy, 26 women - in the II trimester and 26 women in the III trimester of gestation. The control group consisted of 23 practically healthy women of reproductive age. The levels of proinflammatory (IL-1β, IL-6, IL-8) and anti-inflammatory (IL-4, IL-10) cytokines in serum were studied by enzyme immunoassay. Test-systems of Cytokin LLC (St. Petersburg, Russia) were used.

Results. Our data show that in the first trimester of pregnancy the production of pro- and anti-inflammatory cytokines IL-1β and IL-4 increases. Thus, IL-1β level increased 7.8 times and IL-4 level increased 11 times against the values of non-pregnant women, $P<0.001$. During gestation, IL-1β level increased, remaining 8.5 times higher than the values of non-pregnant women in the III trimester, $P<0.001$. Analysis of IL-4 production revealed a gradual decrease in levels without a spike in the second trimester of pregnancy, but also remaining elevated almost 7-fold compared with the group of non-pregnant women, $P<0.001$. Probably, peripheral monocytes activated during pregnancy develop reactions more aimed at restraining inflammation, which is promoted by the high level of spontaneous production of IL-

4 and IL-10 in the I, II and III trimesters of pregnancy, P<0.01). It has been shown that enhancing the effect of Th2-type cytokines is an important factor in maintaining immunologic balance in pregnancy. The onset of pregnancy is characterized by almost the same level of IL-6 increase (1.5 times in the first trimester of pregnancy against the values of the group of non-pregnant women), P<0.01. Our data showed a sharp increase in IL-8 levels with onset of pregnancy, P<0.001. Apparently, high IL-8 content is not only related to immunocompetent cells but also to other IL-8 producers such as endotheliocytes, fibroblasts, etc. With the progression of pregnancy, IL-8 levels in the third trimester decreased to the values of non-pregnant women (P<0.01).

Thus, changes in the immune system of women occurring during pregnancy are aimed at ensuring immunologically conflict-free development of a semi-allogeneic fetus. The development of the gestational process is accompanied by suppression of T-lymphocyte and T-helper reactivity. In the second half of gestation, the transfer of immune humoral factors to the fetus begins, which makes it possible to ensure its protection both during intrauterine development and in the first months after birth. Such significant changes are due to the appearance of a "new" organ in the pregnant woman - the placenta. Proteins and hormones synthesized by the placenta and the fetus seem to play a leading role in the adaptation of the maternal organism to pregnancy.