

Fetal cytokines in hemolytic disease

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Objective

To study cytokines interleukin-1 β (IL-1 β) and interleukin-8 (IL-8) in fetuses with hemolytic disease.

Methods

Immunological studies were carried out on 29 fetal cord blood sera, which were taken by transabdominal cordocentesis from pregnant women at the Republican Perinatal Center for 2020 and 2021. The first main group is 19 fetuses with hemolytic disease during maternal Rh-immunization. The second control group is the umbilical cord blood of 10 fetuses of healthy pregnant women. Determination of the level of cytokines was carried out by enzyme immunoassay using commercial test systems "Human", (Germany) in the laboratory of the Institute of Immunology of the Academy of Sciences of the Republic of Uzbekistan.

Results

IL-1 β is a pro-inflammatory and multifunctional cytokine with a wide spectrum of action, playing a key role in the development and regulation of non-specific defense and specific immunity. Analysis of the concentration of IL-1 β showed that in the fetuses of the main group the indicator was 14.65 ± 2.91 pg/ml, whereas in the control group in healthy fetuses the indicator was 3.35 ± 0.12 pg/ml, the differences were significant. That is, the average concentration of IL-1 β was increased by 4.4 times. IL-8 is a powerful chemokine cytokine. The analysis of IL-8 concentrations showed that the average concentration in fetuses with hemolytic disease was 37.30 ± 5.03 pg/ml, when compared with the data of the control group 62.4 ± 2.12 pg/ml, as can be seen, the difference in values is quite significant. The suppression of IL-8 when compared with the control data was 1.7 times.

Conclusion

High levels of IL-1 β were found in fetuses with hemolytic disease, which indicates the activation of the pro-inflammatory cascade of cytokines, and double inhibition of IL-8 production indicates the suppression of the processes of maturation and activation of neutrophils, apoptosis and migration of neutrophilic leukocytes, as well as hypoxia in fetus.