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FcRn-DEPENDENT DRUG TRANSPORT: POTENTIAL FOR STUDY DURING PREGNANCY

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Introduction. During the perinatal period, the transfer of immunoglobulin G (IgG) in the "mother-child" system is an essential process mediated by the neonatal Fc-receptor (FcRn). FcRn is considered a promising target for the development of new therapeutic agents, particularly in the treatment of IgG-mediated autoimmune diseases such as systemic lupus erythematosus, rheumatoid arthritis, and others. Fc-receptor inhibitors, for example, Nipocalimab, reduce the level of pathogenic autoantibodies by accelerating the catabolism of circulating IgG without suppressing other components of the immune system [1]. Therefore, regulation of the IgG-FcRn complex is important for targeted drug delivery during pregnancy, which may improve the pharmacokinetics of therapeutic antibodies and/or reduce the risk of transferring pathogenic antibodies to the fetus.

Materials and methods. The quantitative level of FcRn was determined in 121 samples of meconium and amniotic fluid using an enzyme-linked immunosorbent assay (ELISA) with the "Human FcRn ELISA Kit" (Shanghai SunRed Biotechnology Company, China). The relationship between the studied parameters was assessed using Spearman correlation analysis, with $p<0.05$ considered statistically significant.

Results and their discussion. Fc-receptor was detected in the clinical samples. The correlation between receptor concentration in the analyzed samples and the gender of the newborn was evaluated. The results were not statistically significant for boys ($p=0,92$) and girls ($p=0,41$), indicating that FcRn concentration is independent of the newborn's gender.

Conclusions. The results demonstrate a gradual accumulation of Fc-receptor in clinical samples throughout pregnancy. FcRn concentration in meconium and amniotic fluid is independent of the newborn's gender, indicating a universal IgG-FcRn transport mechanism. These findings highlight the need for further studies on FcRn as a target for targeted drug delivery during pregnancy.

References:

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