

tytuł pracy: *„Wartości predykcyjne wybranych sfingolipidów osocza u pacjentek z porodem przedwczesnym”*

Summary

In light of the fact that preterm birth continues to be the leading cause of neonatal mortality and morbidity, all efforts of researchers and practitioners should focus on understanding the pathogenesis of the problem and implementation of preventive measures. The study investigates pathogenic mechanisms leading to premature labor, with special attention paid to sphingolipid mediators. It is a large group of compounds involved in signaling pathways related to inflammation, apoptosis, and immune response. The aim of the study was to evaluate plasma concentrations of sphingolipids (Sphingosine, Sphinganine, Sphingosine-1-Phosphate, C14 Ceramide, C16 Ceramide, C18:1 Ceramide, C18 Ceramide, C22 Ceramide, C24:1 Ceramide and C24 Ceramide) in patients presenting symptoms of preterm labor and false preterm labor. The results were correlated with the TNF- α and PGE-2 levels, both being important inflammatory mediators.

Ultra-high performance liquid chromatography (UHPLC)/electrospray ionization triple mass spectrometry (UHPLC-ESI-MS/MS) was used to assess plasma concentrations of the investigated sphingolipids. TNF- α and PGE-2 concentrations were measured using standard ELISA kits. After considering the inclusion and exclusion criteria, 61 patients with preterm labor and 40 with false preterm labor were enrolled in the study. A statistically significant increase in plasma Ceramide 16 levels was observed in patients with preterm labor as compared to the group with false preterm labor ($p < 0.004$). Ceramide 16 was the best predictor in patients with moderate preterm birth (> 32 weeks of gestation). SPA (Sphinganine) proved to be the best predictor in patients with very preterm birth (28-32 weeks of gestation). A significant increase in PGE-2 concentration was also noted in the group with preterm labor ($p = 0.0226$). It is consistent with the current state of knowledge about arachidonic acid derivatives in the pathophysiology of premature labor. A positive correlation between TNF- α in the subgroup with very premature birth (28-32 weeks of gestation) and Ceramide C18:1 was noted. The results suggest involvement of sphingolipid mediators in the metabolic pathways, leading to premature birth. There is reason to believe that therapy directed at enzymes involved in lipid metabolism might be beneficial when dealing with preterm labor. There is a clear need for further research in this field, including an extended panel of lipid substances and a larger sample size.