

^{31}P MRS analysis of the phospholipid composition of the peripheral blood mononuclear cells (PBMC) and bone marrow mononuclear cells (BMMC) of patients with acute leukemia (AL).

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Streszczenie

The aim of this study was to evaluate the phospholipid concentration in acute leukemia (AL) blast cells from peripheral blood (PBMC) and bone marrow (BMMC). In vitro ^{31}P Nuclear Magnetic Resonance Spectroscopy (^{31}P MRS) was used. The integral intensities of the resonant peaks and the phospholipid concentrations in PBMC and BMMC were analyzed. Differences in the phospholipid concentrations in cells from myeloblastic or lymphoblastic lines were also evaluated. This investigation was carried out on phospholipid extracts from PBMC and BMMC from 15 healthy volunteers and 77 patients with AL (samples taken at the moment of diagnosis). A significant decrease in sphingomyelin (SM) and phosphatidylserine (PS) was observed in the PBMC of patients with AL relative to the results for the healthy volunteers. For ALL, we found a significant decrease in the concentration of phosphatidylcholine plasmalogen (CPLAS), SM, PI+PE (phosphatidylinositol + phosphatidylethanolamine) and PS in comparison with the results for healthy volunteers and patients with AML. Experiments with BMMC cells revealed a significant decrease in the concentration of CPLAS, SM, PI+PE, and PS in ALL relative to AML. Additionally, a significant decrease in phosphatidylcholine (PC) concentration was observed in ALL compared to AML. If the phospholipid extracts were taken simultaneously from the same patient, there were no significant differences in the integral intensities and phospholipid concentrations between PBMC and BMMC.

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