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Abstract Book

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Content

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[1652] IL-6 AS A MARKER OF LUNG COMPLICATIONS IN CHILDREN WITH ACUTE LEUKEMIA

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Introduction

Acute leukemia (AL) takes a leading place in the structure of pediatric cancer incidence. Recently, there is an improvement in the prognosis of AL and more attention is concentrated on studying the complications of AL, including pulmonary ones.

Aim of the study

To assess the level of IL-6 in exhaled breath condensate (EBC) in children with AL and their prognostic value.

Materials and methods

We examined 51 children aged 6-18 years with AL and 15 healthy children for the control group. Children with AL were divided into 2 groups: 1st group –during induction phase of chemotherapy (n = 24), 2nd group – in remission (n= 27). The presence of congenital or chronic diseases of the respiratory system before the debut of AL and diagnosed primary immunodeficiency were exclusion criteria. IL-6 level in EBC was assessed by ELISA. Data analysis was performed by Statistica 8 and MedCalc 17.2.

Results

Pulmonary complications were recorded in 86.27% % of children with AL. Acute pulmonary complications were presented in 87.50% of children (group 1). In 18.52% of children, pulmonary complications persisted during remission (group 2). The increased levels of IL-6 in 1st group (52,71 (48,28; 60,71) pg/ml) and 2nd group (20.74 (18.34; 24.08) pg/ml) compared with control (8.12 (7.02; 9.45) pg/ml) were found: p1-C=0.0000; p2-C=0.0000. Children with AL during chemotherapy (group 1) had higher levels of IL-6 in EBC than children in remission (group 2): p1-2=0,0000. Despite the decrease in IL-6 in children in the remission group, it is higher than the level of the control group. According to ROC analysis level of IL-6 in EBC collected during the induction phase of chemotherapy >47,64 pg/ml can be predictive for acute pulmonary complications (AUC 0,952; sensitivity 85,71%; specificity 100%); >52,08 pg/ml can be indicative of the development of pneumonia (AUC 0,843; sensitivity 100%; specificity 78,57%); >61,33 pg/ml shows possibility to predict distant pulmonary complication in remission (AUC 0,738; sensitivity 75%; specificity 95%). IL-6 level in EBC in remission >25,19 pg/ml can predict persistent pulmonary complications in AL survivals (AUC 0,891; sensitivity 80%; specificity 95,45%).

Conclusions

Children with AL have significantly increased levels of IL-6 in EBC both during chemotherapy and in remission, which proves the activity of the inflammation process in the blood-air barrier of the lungs in these patients. The level of IL-6 in EBC can be used as a possible predictor of pulmonary complications in children with AL.