

CLINICAL POSSIBILITIES OF FLOW CYTOMETRY IN THE STUDY OF ASTHMA

Andrushchenko V.V., Makieieva N.I., Herasymenko Y.V.

Kharkiv National Medical University, department of Pediatrics № 2, Kharkiv, Ukraine.

andrushenkoverav@gmail.com

Introduction. Asthma is a global problem fought by leading experts in the medical community. To improve the study of this problem, we suggest the use of flow cytometry.

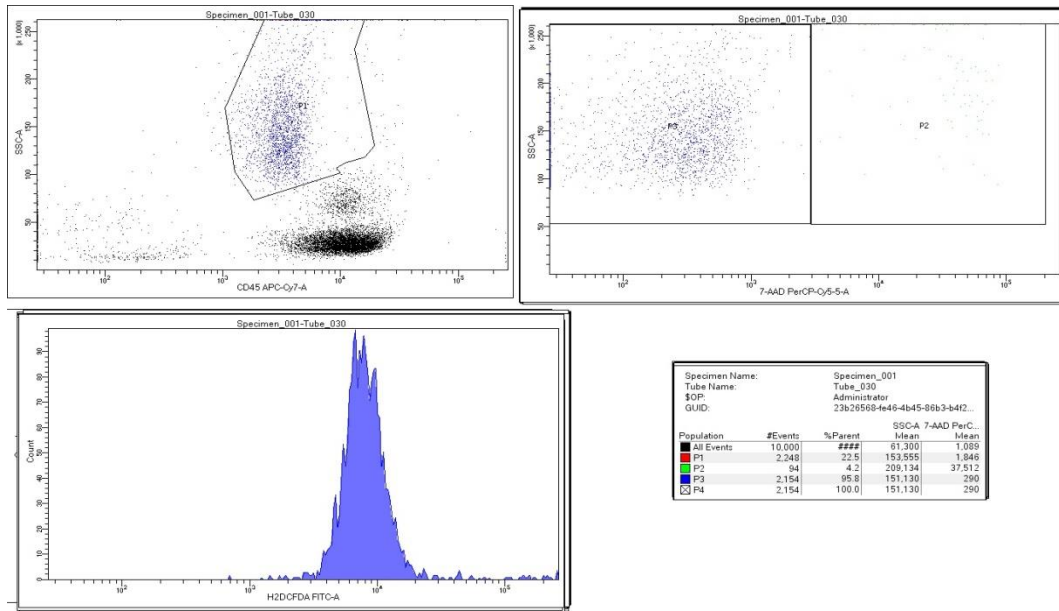
Materials and methods. The survey involved 26 children with persistent asthma. Our research was carried out using a laser flow cytofluorimeter-sorter BD FACSCanto II (Becton Dickinson, USA) with analysis of the obtained results using the FACSDiva 6.1.2 program.

The results. Patients with severe asthma had the lowest levels of ROS in granulocytes compared with the levels in patients with mild and moderate asthma, as well as in the control group ($p_{1-3} = 0.0003$, $p_{2-3} = 0.0017$, $p_{3-1} = 0.0150$).

Statistical calculation proved a probable decrease in the percentage of dead necrotic granulocytes in patients with severe asthma compared with both the control group and the levels in patients with mild and moderate asthma ($p_{1-3} = 0.0009$, $p_{2-3} = 0.0177$).

There was a direct moderate correlation between levels of 7-AAD positive granulocytes and levels of reactive oxygen species (ROS) in neutrophils ($r = 0.5597$, $p = 0.0006$).

Conclusions. The search for the most sensitive and specific diagnostic marker of the activity of the chronic inflammatory process in asthma continues. Flow cytometry is a modern highly informative method for assessing the morphofunctional state of cells, which allows you to analyze both a population of cells and each cell individually in a versatile way. The introduction of flow cytometry into routine clinical practice for the purpose of early diagnosis of the degree of activity of the chronic inflammatory process would reduce the number of complications and reduce the level of disability.



The aim of our study was to study the percentage of dead necrotic granulocytes (7-AAD positive granulocytes, %) and the levels of reactive oxygen species (ROS) in neutrophils in children with asthma.