

## **FORMATION OF NEUTROPHIL EXTRACELLULAR TRAPS (NETS) IN CHILDREN WITH ACUTE LEUKEMIAS.**

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Neutrophils have been considered as the primary soldiers of the innate immune system. One of their weapon is microbicidal mechanism named NETosis. In this mechanism, neutrophils die after releasing a web-like structure outside the cells, composed mainly of nucleic acids. Created construction is known as neutrophils extracellular traps (NETs). Deficiencies in formation of NETs increases susceptibility to infection of the individual host. Patients with acute leukemia are at high risk for infectious complications. Therefore the goal of our study was to determine if stimulated neutrophils isolated from the blood of children with acute leukemia fail to form NETs.

Blood was collected from leukemic children at the time of the diagnosis. Neutrophils, after isolation, were seeded on 96-well plate and activated with stimulator - PMA (phorbol-12-myristate-13-acetate) or treated only by cell medium. NETs were observed by fluorescent microscop. Extracellular DNA was quantitated by fluorometry using a cell-impermeable fluorescent dye.

For our studies we used 15 samples derived from patients with acute leukemia and 10 samples from healthy donors. Shapiro - Wilk test ( $p > 0.05$ ) showed normal distribution in all used samples. Averages of extracellular DNA releasing after 3 - hours incubation with PMA were  $8141 \pm 182$  RFU (relative fluorescent units) for children with acute leukemia and  $12752 \pm 499$  RFU for healthy children. Differences between these two groups were statistically significant.

In our investigation we showed that NETs creation is less effective in children with acute leukemia than in healthy volunteers.