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E0202 Distinct immunophenotyping profiles of EBV-induced infectious mononucleosis and HIV-infection

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Background: Flow cytometry analyzes the number and ratio of specific cell subpopulations and recognizes the pathological changes of cellular immunity, which presents immunophenotyping profile. Immunophenotyping of peripheral blood cells can help distinguish between different infectious diseases. The aim of this study was to compare immunophenotyping profile of patients with EBV-induced infectious mononucleosis (EBV IM) and newly-diagnosed HIV patients. Percentages of peripheral blood T-lymphocytes, B-lymphocytes, NK-cells, CD4+ T-lymphocytes, CD8+ T-lymphocytes, activated CD8+CD38+ and HLA-DR T-lymphocytes were determined both patient groups and compared with the reference values for healthy individuals.

Materials/methods: The study enrolled 136 patients with EBV-associated infectious mononucleosis and 473 newly-diagnosed HIV-infected patients that entered clinical care at the Croatian Reference Center for HIV/AIDS in the period January 2012 till December 2016. Peripheral blood lymphocyte subsets were determined by 5-color flow cytometry. Mann-Whitney test was used for statistical analysis.

Results: Immunophenotyping profile in EBV IM included increased percentages of T-lymphocytes (median 87.9%, range 71.2-98.1%), CD8+ T-lymphocytes (66.1%, 39.3-85.4%), HLA-DR+ T-lymphocytes (53.5%, 7.8-82.6%), CD8+CD38+ T-lymphocytes (61%, 21-81%) compared with laboratory reference values. Percentages of B-lymphocytes (2.4%, 0.1-9.5%) as well as CD4+ T lymphocytes (16.7%, 5.8-39.1%) were below reference values. Percentages of NK-cells (9.1%, 0.1-25.7%) and absolute counts of CD4+ T-lymphocytes (918 cells/µL, 223-2094 cells/µL) were within reference values for most patients. Compared with reference values, HIV-infected patients also showed changes in the distribution of peripheral blood lymphocytes including increased percentages of CD8+ T-lymphocytes (median 52.7%, range 5.2-88.6%), CD8+CD38+ T-lymphocytes (26%, range 3-82%) as well as decreased percentages of CD4+ T-lymphocytes (19.8%, 0.4-55%) as well as absolute count of CD4+ T-lymphocytes (327µL, 1-1871µL). Statistically significant differences between EBV and HIV groups were noted for the percentages of B-lymphocytes, HLA-DR+ T lymphocytes, CD8+CD38+ lymphocytes, and CD4+ absolute counts ($p<0.00001$).

Conclusions: The comparison of peripheral blood immunophenotyping profiles of EBV IM and HIV infection showed important differences, particularly in the pattern of percentages and absolute counts of CD4+ T-cells and expression of activation markers CD38 and HLA-DR.