DIAGNOSIS OF T-CELL AND NK CELLS CHRONIC LYMPHOPROLIFERATIVE DISORDERS – MAJOR ROLE OF IMMUNOPHENOTYPING

Horia Bumbea
Emergency University Hospital, Bucharest
University of Medicine and Pharmacy
"Carol Davila", Bucharest

Chronic T and NK cell lymphoproliferative disorders represents about 15% of chronic lymphoproliferative disorders, but their diagnosis is still a difficult problem. Immunophenotyping is absolutely essential in the current diagnosis of chronic lymphoproliferative disorders because their current classification is based on the determination of cell line B or T / NK cell differentiation and malignant stage. Role of immunohistochemical analysis associated histopathological examination is important, but the combination flowcytometry in biopsy sample analysis (lymph node, tumor) due to multiparametric and complex potential.

Current WHO classification has identified a number of entities based on the cell type and origin of the malignant clone. Thus, the most important step is to accurate identify aberrant cell, especially in cases with solitary lymphocytosis.

Identification of clonal T and NK cell populations. T cell malignancies is expansion of cell clones with restricted expression of antigens, unlike reactive T popular. However, identification is often difficult because the population is mixed with the malignant normal. Thus, changing the ratio of CD4 (helper) / CD8 (suppressor) is a useful indicator. Therefore, we analyzed the expression of aberrant markers that often characterize T cell clones, such as the lack of markers CD3, CD5, CD4, CD8, CD2, and expression increased / decreased them.

Clonality of T cell subset is analyzed by determining the TCR Vβ chain (not available immunohistochemistry), or molecular biology analysis TCR gene rearrangement. This analysis allows accurate identification of a clone, but is expensive and difficult method introduced in practice.

Regarding the line Natural Killer (NK) can identify a weak expression of specific markers, CD2, CD7, CD56, and CD57 expression more intense or another, CD8 and CD16.

Besides this stage, it is necessary to identify markers that define the stage of maturation and origin (naive T cells, memory, effector, etc.) measuring the origin and type of limfoproliferare, and allows framing WHO classification. Determination of atypical immunophenotype ca identify malignant cells even in small proportion in the sample and even identify several clones (composite lymphoma), and requires flowcytometry analysis of residual disease in both cell suspensions (blood, bone marrow aspirate) and in lymph nodes or extranodullar fragments of biopsy.

Both in line and in lineages B or T, immunophenotyping by flowcytometry can identify a pattern atypical population specific for a known malignancy. The new protocols proposed Euroflow Group even allow standardization laboratories flowcytometry and creating a bank of patterns for each disorder, and comparison with reference populations reactive or pathological, which provides high accuracy in diagnosis.

In conclusion, we can say with certainty that modern diagnosis of T and NK limfoproliferarilor is mainly based on multiparametric immunophenotyping, while allowing accurate quantification of minimal residual disease and therapeutic orientation.