Feasibility and usefulness of evaluation of immune status in lung cancer by EBUS/TBNA analysis


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INTRODUCTION

The efficacy of lung cancer immunotherapy with immune check inhibitors is well documented in clinical trials and in real life. However, response to this therapy is individual and the biomarkers are continually investigated.

The character of local tumour environment (TME) seems to be not without significance and prognostic significance of TME (immunoscopying) was documented*. However, low reresection rate of lung cancer is important limitation in TME evaluation.

We previously presented the usefulness of BAL in the evaluation of immune status of NSCLC patients*. EBUS/TBNA procedure is approved and recommended methods of N stage evaluation*. Thanks to availability the EBUS/TBNA material is not infrequently the only for histological diagnosis of lung cancer. Previously, we confirmed the specificity of immune cells composition in metastatic lymph nodes (LNs)*.

In this study we aim to present immune cells analysis in LNs aspirates obtained by EBUS/TBNA in relation to metastatic process.

RESULTS

We found significant differences in the proportion of the main types of lymphocytes and dendritic cells between LNs aspirates and PB: the proportion of cells was higher in LNs than in PB and was highest in metastatic LNs (mLNs).

CONCLUSION

The results of this study confirmed the advantage of immune cells analysis in LNs aspirates obtained by EBUS/TBNA during lung cancer diagnosis. These findings indicate a consistent immune response in metastatic LNs. The composition of LNs cellular response can be treated as TME in a way. It is possible to make a selection and modification of cell types in multiparameter flow cytometry and elaborate useful model for common use.

METHODS

36 patients with primary lung cancer were investigated. There were patients with all histological types of lung cancer. During diagnostic bronchoscopy an additional aspirate was taken by EBUS/TBNA for flow cytometric analysis (fc). It was random selection of LNs. For further analysis LNs were divided accordingly to the presence of metastases histologically confirmed.

The proportion of immune cells were determined in LNs aspirates and, for comparison, in peripheral blood (PB) by multiparameter fc. A panel of monoclonal antibodies was used for detection of: CD3, CD4, CD8 cells, NKT, NK, dendritic cells (DCs), regulatory T cells (Tregs) and the expression of PD-1 and PD-L1 on lymphocytes and DCs.

RESULTS

Statistical analysis (Spearman test) revealed signficant correlations between cells in PB and in metastatic LNs. While these correlations in PB were rather chaotic, in mLNs these relations concern regulatory cells.