IJAE Vol. 115, n. 1/2 (Supplement), 2010

Involvement of nerve growth factor (NGF) and its receptors in respiratory diseases

Claudia Montagnoli[1], Alessandra Pistilli[1], Anna Maria Stabile[1], Rocco Rende[2], Maria Grazia Rambotti[1], Antonio Spreca[1] and Mario Rende[1]

[1] Sect. of Human Anatomy, University of Perugia School of Medicine, Italy
[2] Sect. of Orthopedics and Traumatology, University of Perugia School of Medicine, Italy

Beside its classical role in nervous system, NGF plays a crucial role also in inflammatory processes. In fact, B and T lymphocytes, as well as mast cells, monocytes, dendritic cells and macrophages, produce high levels of NGF and express its receptors TrKA and p75. Previous studies have shown an involvement of NGF in some respiratory diseases, but its role is still unclear. The aim of our study was to investigate the expression and the levels of TrKA and p75 on innate and adaptative immune response cells in patients with asthmatic and Chronic Obstructive Pulmonary (COPD) diseases, by cytofluorimetric analysis. Blood samples of 15 control subjects, 10 asthmatic and 10 COPD patients were analyzed.

Our results showed that, in adaptative immune response cells, TrKA expression was significantly decreased in asthmatic but not in COPD patients, while p75 was not expressed.

Furthermore, analysis of innate immune response cells showed a significant increase in TrKA, but not in p75 in the asthmatic group and an increase of both TrKA and p75 in the COPD group.

In conclusion, our data show that, beside the release of NGF, there is an important involvement of NGF receptors during the innate and adaptative immune response in respiratory diseases. In clinical practice, evaluation of these two receptors may be a further parameter for a better definition of the severity in respiratory diseases.

Acknowledgements This work was supported by CARIT Foundation, Terni.

Key words
NGF, TrKA, p75, immune response, respiratory diseases