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Nuclease activity associated with secreting granules by lymphocytes in patients with bronchial asthma

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Abstract

© 2015 Vodounon CA, et al. Background: We know, through recent studies, the existence of some morpho-biochemical peculiarities in the process of type 1 programmed death of patients' lymphocytes suffering from bronchial asthma, but little convincing data exist on the activity of enzymes involved in this physiological process. Therefore, the aim of our research was to study the enzymatic activity of secreting granules of patients' lymphocytes with bronchial asthma, according to the degree of severity. Method: The study was based on the role of granular extracts in the process of programmed death isolated lymphocytes from peripheral blood of relatively healthy individuals and asthmatic patients with different severity. The immunological characteristics of lymphocytes was done with the radial immune-diffusion method and ELISA test but the method of agarose gel electrophoresis help us to detect the catalytic activity of protein extracts of secreting granules of lymphocytes. Results: The results obtained showed that lymphocytes from asthmatic patients with severe severity are characterized by a decrease in cytotoxic T lymphocytes content balanced by an increase in T-Helper lymphocytes. We also noticed the enzymatic activity at all the groups studied but this activity was relatively high in asthmatics with severe severity. Furthermore, the study of the cationic dependence has allowed to establish an increase in enzymatic activity in all the groups studied after incubation of DNA in a medium containing Ca^{2+} with a pH of 7.5 unlike ions Mn^{2+} which seem to reduce the enzymatic activity. The expression of enzymatic activity in the presence of zinc allows us to suggest the presence of DNase acid in granules, which activity is not necessarily associated with divalent metal ions. Conclusion: Based on the above results, one might conclude that the secreting granules have a high enzymatic activity but with a strong cationic dependence. This not only allows a better understanding of the morphological changes observed during the course of apoptosis in lymphocytes of patients but also brings more to the knowledge of the enzymatic influence in the process of type 1 programmed death.

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Keywords

Apoptosis, Bronchial asthma, Granule, Lymphocytes