

Alterations in thymocyte subpopulations during the course of experimental autoimmune encephalomyelitis.

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Abstract

The objective of this project was to analyze the first thymic alterations during the course of experimental autoimmune encephalomyelitis (EAE). Our data has shown that during the development of EAE, thymus presented a relative size reduction, loss of cortico-medullary delimitation and alterations in the proportion of thymocytes. Such results suggest an alteration in the stromal compartment of thymic microenvironment and in the selection and development of T cells.

Key words: imune system, thymocytes, EAE.

Introduction

The experimental autoimmune encephalomyelitis (EAE) is a model of a T lymphocyte-mediated autoimmunity disease, since it can be transferred to normal animal by pre-activated T CD4+ lymphocytes (Sospedra, M & Martin, R). The complete T cell development depends on the constant migration of hematopoietic precursors through the thymic microenvironment, which is composed by lymphoids and non-lymphoids compounds (Kuchroo, V. K. et al.). The intrathymic migration is fundamental to the T cells to find the necessary signals to survive, proliferate, differentiate, and generate repertory diversity (Manley, et al). Thymus, as well as the whole immune system, is influenced by the central nervous system. Therefore, understanding the events that takes place in the thymus during EAE evolution are crucial to a better understanding of the mechanisms of the autoimmune disease. In the present study, we intended to characterize thymocytes alterations during the development of EAE.

Results and Discussion

Thymus from immunized mice presented a significantly reduction in the relative size (thymus index) in relation to the control group data. Important to note that such reduction is directly related to the course and evolution of the disease. In parallel, the histopathological analysis revealed alterations in the thymic microenvironment structure of immunized animals, mainly represented by the loss of cortical-medullary delimitation and reduction of the population density in the board of the organ. In addition, such modifications in the thymus microenvironment from EAE's animals was companied by the loss of subtypes of thymocytes

population, analysed by flow cytometry. Altogether, our data suggests that T cell development and selection is deeply compromised during the course of EAE.

Conclusions

Herein, our data show that thymus is a target organ during the clinical evolution of the EAE – presenting important alterations which contributes to defects in thymocyte development and maturation. At the moment, we propose that these results can be an effect of EAE development and other experiments has been conducted in our lab to prove this hypothesis.

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