Immunoregulatory mechanisms may be associated with CD4$^+$ cytotoxic lymphocytes and apoptosis induced by Trypanosoma cruzi infection

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Chagas disease, caused by Trypanosoma cruzi, affects 15 million people in Latin America and the heart involvement is the major cause of morbidity and mortality. Although the pathophysiology of Chagas disease has not been completely understood, it is widely accepted that the involvement of the immune response is critical in determining the outcome of the disease. In this context, CD4$^+$ T cells may play an extremely important role in generating different mechanism of protection. In addition to effector and regulatory functions, CD4$^+$ T cells may also be involved with lytic activities against the parasite and may have a relevant role on control of the infection. In the present study we investigate the cytotoxic CD4$^+$ T cells response and its involvement in apoptosis mechanisms and homeostasis of immune responses in Chagas patients presented different clinical forms. Our data demonstrated that: 1) CD4$^+$ T cells from indeterminate patients (IND) presented higher Granzyme B and CD107 expression than cardiac patients (CARD) and non-infected individuals (NI); 2) Specific antigen stimulation induce a higher CD95L expression in CD4$^+$CD95$^+$ T cells from IND patients when compared to CARD and NI individuals; 3) Finally, indeterminate and cardiac patients have an increase in caspase 3 frequency after in vitro stimulation. These results suggest new insights into the functional competence of cytotoxic CD4$^+$ T cells though the mechanisms differ between clinical forms, which will lead to a better understanding of their influence during immune responses against T.cruzi.

Key words: CD4$^+$ cytotoxic T cells, apoptosis, immunoregulation

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