v. 3, n. 39, 2023

International Journal of Health Science

VACCINE DEVELOPMENT IN A NEGLECTED TROPICAL DISEASE AND ITS EFFECTIVENESS IN DECREASE HEART TISSUE DAMAGE: A SYSTEMATIC REVIEW

Larissa Cristina Martins Borges
Fundação Santa Casa de Misericórdia de Franca

Ana Flávia Parreira de Morais
Fundação Santa Casa de Misericórdia de Franca

Emílio Bolzani
Fundação Santa Casa de Misericórdia de Franca

Introduction: Chagas disease is a chronic disease caused by the protozoan Trypanosoma cruzi, and has two clinical phases, the acute phase and the chronic phase. Chronic chagasic cardiomyopathy is the most frequent manifestation which progresses to heart failure and death. TSA-1 (Trypomastigote-1 surface antigen) and Tc24 (24 kDa flagellar calcium-binding protein) antigens have been proposed as candidates for an immunotherapeutic vaccine. Immunization with DNA vaccines encoding these antigens may decrease cardiac tissue damage.**Objective:** To carry out a systematic review to evaluate the results of the DNA vaccine encoding the TSA-1 and Tc24 antigens in Chagas carriers and its efficacy in chronic cardiomyopathy. **Methodology:** The following databases were used as a research source: MEDLINE, LILACS and PUBMED from 2015 to 2019. Articles with the terms "Chagas disease", "immunotherapy", "cardiomyopathy" were included. **Results:** With the data collection, 21 studies were found and at the end of the screening process, 9 studies were included, as they presented data on the effects of TSA-1 and Tc24 antigens with a specific immune response against TH1 / TH2 parasites in patients with Chagas disease. Studies have provided that TSA-1 and Tc24 antigens prime the immune system during natural T. cruzi infection, and induce a long-lasting humoral and cellular immune response that can be recalled in vitro after at least 10 years of chronic infection. These findings support the immunogenicity of TSA-1 and Tc24 as potential vaccine candidates in humans.**Conclusions:** The use of these antigens as a therapeutic vaccine alone can help control the development of chronic cardiomyopathy caused by T. cruzi. These results represent an important step towards the initiation of preclinical trials of such a vaccine in non-human primates and future clinical trials.

Keywords: Chagas disease. Cardiomyopathy. Immunization.