EVALUATION OF CELL ADHESION MOLECULES LIKE POTENTIAL BIOMARKERS FOR CHRONIC CARDIAC PATIENTS WITH CHAGAS DISEASE

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Abstract

Chagas disease is a protozoan infection endemic to Latin America caused by *Trypanosoma cruzi*. Chagas cardiomyopathy is the most severe chronic manifestation and leading cause of mortality. Parasite persistence in the chronic phase triggers an inflammatory response, stimulating the secretion of soluble cell adhesion molecules (sCAMs), which participate in the recruitment of leukocytes to the infection site. The sCAMs have been investigated in other diseases as potential biomarkers for diagnosis and prognosis. This study aimed to evaluate sCAMs levels in chronic patients with different stages of Chagas heart disease progression. Sera from 303 individuals were classified based on cardiac involvement (infected asymptomatic; infected mild cardiac; infected severe cardiac; non-infected cardiac and non-infected asymptomatic). sCAMs (sP-selectin, sE-selectin, sL-selectin and sVCAM-1) were quantified. sCAMs levels were measured using the Cytometric Bead Array Flex and acquired on a FACSCalibur flow cytometer. The ability of sCAMs to discriminate among groups was assessed using Receiver Operating Characteristic (ROC) curve analysis, with the area under the curve (AUC) measuring test performance. sCAMs showed good performance (AUC > 0.8) in distinguishing chronic asymptomatic patients from those in the initial cardiac phase. Also, sL-selectin presents an ability to differentiate infected and non-infected individuals (AUC=0.88), despite both groups lacking clinical signs. Additionally, sL-selectin differentiated infected and non-infected individuals, both with heart disease (AUC=0.85). To differentiate mild from severe cardiomyopathy, sVCAM-1 and sP-selectin demonstrated good performance, with sL-selectin standing out with an excellent accuracy (AUC=0.92). Therefore, sCAMs may serve as potential biomarkers for the diagnosis and prognosis of chronic cardiac patients with Chagas disease.

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