Abstract

Objective: To compare the diagnostic performance of seven methods to determine Trypanosoma cruzi infection in patients with chronic Chagas disease. Methods: Analytical study, using the case-control design, which included 205 people (patients with Chagasic cardiomyopathy, n= 100; control group, n= 105). Three enzyme linked immunosorbent assays, one indirect hemagglutination assay and one immunochromatographic test were assessed. Additionally, DNA amplification was performed via the PCR method using kinetoplast and nuclear DNA as target sequences. For the comparative analysis of diagnostic tests, the parameters used were sensitivity, specificity, positive and negative predictive values, Receiver Operator Characteristic (ROC), positive and negative likelihood ratio, as well as quality analysis. Results: The commercial Bioelisa Chagas test showed the highest sensitivity (98%), specificity (100%), and positive and negative predictive values; additionally it had the highest discriminatory power. Otherwise, the amplification of T. cruzi DNA in blood samples showed low values of sensitivity (kinetoplast DNA= 51%, nuclear DNA= 22%), but high values of specificity (100%), and moderate to low discriminatory ability. Conclusion: The comparative analysis among the different methods suggests that the diagnostic strategy of T. cruzi infection in patients with chronic Chagas disease can be performed using ELISA assays based on recombinant proteins and/or synthetic peptides, which show higher diagnosis performance and can confirm and exclude the diagnosis of T. cruzi infection. The molecular methods show poor performance when used in the diagnosis of patients with chronic Chagas disease.

Keywords

Keywords, Chagas disease, Trypanosoma cruzi, enzyme linked immunosorbent assay, diagnosis, recombinant proteins, polymerase chain reaction, Colombia.