

Rapid diagnostic tests accurately diagnose Chagas disease

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Rural community in Cochabampa, Bolivia Credit: ISGlobal

Chagas disease, caused by the parasite *Trypanosoma cruzi*, is the neglected tropical disease with the highest burden in Latin America. Now, researchers report in *PLOS Neglected Tropical Diseases* that two commercially-available rapid diagnostic tests (RDTs) can be combined for conclusive diagnosis of Chagas disease.

In its acute stage, Chagas disease is typically asymptomatic and goes unnoticed, so the disease is most often diagnosed during the chronic stage of infection. Diagnosis is based on the agreement of two conventional serological tests, using Enzyme-Linked Immunosorbent Assay (ELISA). This approach is considered the gold-standard but requires laboratory facilities that many highly endemic regions don't have easy access to. RDTs are available which require no cold storage, can use smaller volumes of blood, and provide faster results, but their effectiveness has not been validated in all areas.

In the new work, Julio Alonso-Padilla, researcher at the Barcelona Institute for Global Health (ISGlobal), an institution supported by "La Caixa", and colleagues enrolled 685 subjects in the Chaco region of Bolivia. Patients were over the age of 1, had not been previously treated for *T. cruzi* infection and were recruited through field screening campaigns. Blood was analyzed using a combination of two RDTs and compared to serological analysis by ELISAs.

Overall, prevalence of Chagas disease in the population under study was 44.4%. The agreement between the two RDTs was 93.1%. Compared to the ELISA standard, the combined use of the RDTs provided a sensitivity of 97.7% and a specificity of 96.1%. There were no significant differences seen in results between different communities studied.

"The results from this work encourage the use of RDTs as an alternative to conventional serological methods in the Bolivian Chaco and other areas with similar epidemiological characteristics," the researchers say.

More information: Lozano D, Rojas L, Méndez S, Casellas A, Sanz S, et al. (2019) Use of rapid diagnostic tests (RDTs) for conclusive diagnosis of chronic Chagas disease - field implementation in the Bolivian Chaco region. *PLOS Neglected Tropical Diseases* 13(12):

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