

PCR-BASED DIAGNOSIS FOR CHAGAS' DISEASE IN BOLIVIAN CHILDREN LIVING IN AN ACTIVE TRANSMISSION AREA: COMPARISON WITH CONVENTIONAL SEROLOGICAL AND PARASITOLOGICAL DIAGNOSIS

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A large field study has been performed in the Cochabamba region of Bolivia with the aim of comparing the polymerase chain reaction (PCR) with other diagnosis methods for Chagas' disease. The amplification of *Trypanosoma cruzi*-specific kinetoplast DNA sequences in blood samples was compared with classical serological methods, specific IgM detection and direct parasite visualization for 268 school children in a single village where Chagas' disease transmission is active. Of 113 children positive by classical serology or buffy coat examination, 106 were detected by PCR (sensitivity: 93,8%). We did not observe any significant difference of PCR sensitivity between initial (IgM and/or buffy coat positive) and indeterminate stage (only IgG positive) patients. Among the remaining 155 children unconfirmed as chagasic (who were either only IgM positive, or IgG-, IgM-, and buffy coat -negative) only one case was PCR positive. This case may be due to DNA contamination, or to a very recent infection not detected otherwise, or to specific immune depression. These results show that PCR is a very sensitive parasitological test for Chagas' disease in active transmission regions. The future follow-up of the possibly infected patients who were only IgM-positive should clarify the interest of PCR and IgM tests in the detection of starting infections.

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PCR DETECTION OF *Trypanosoma cruzi* DNA IN ESOPHAGEAL TISSUES OF PATIENTS WITH CHRONIC DIGESTIVE CHAGAS' DISEASE

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The pathology of chronic Chagas' disease, caused by infection with *Trypanosoma cruzi*, is pleomorphic. There may be cardiac and/or digestive manifestations, the latter with pathological dilatation of the colon and/or esophagus. Studies by optical and electronic microscopy show the presence of inflammatory infiltrates, with degeneration of miocytes and autonomic neurites. The role of the parasite on the pathogenesis of the tissue lesions is controversial. In early histochemical studies, few or no parasites were seen in the chronic lesions, leading to the suggestion that autoimmune processes played a part. However, recent immunohistochemical and PCR studies in heart tissues of chronic Chagas' disease patients with cardiomyopathy, have shown a strict correlation between the presence of the parasite and the tissue lesion. On the other hand, examination of esophageal tissues of Chagas' disease patients with the digestive clinical form have hitherto failed to demonstrate a close correlation between the megaesophagus pathology and the presence of *T. cruzi*. We have analyzed frozen esophageal tissues obtained by autopsy or surgical procedures from 6 patients with Chagas' disease (three of them with chagasic cardiomyopathy and three with megaesophagus) and three non-Chagasic controls. By using a PCR protocol we have detected the presence of *T. cruzi* DNA in the esophagus of chagasic patients with gastrointestinal disease but not in those with only cardiac pathology or from three serologically negative controls. Although not excluding a possible involvement of autoimmune mechanisms in the pathogenesis of megaesophagus in Chagas' disease, our results suggest that the inflammatory process may be directly dependent on the presence of *T. cruzi*.

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