

Chagas' disease among school students from Chiapas, Mexico: Two cases of Chagasic cardiomyopathy

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Background. Chagas disease is a vector - borne life threatening illness originally confined to the Americas. Seroprevalence studies have been reported in the Mexican state of Chiapas; nevertheless, no clinical/cardiological studies have been conducted to detect underage cases. **Material and methods.** A serological screening by ELISA was conducted on 1556 blood samples from school pupils; seropositivity was confirmed by indirect ELISA and indirect immunofluorescence. Seropositive cases were clinically assessed in a hospital, and electrocardiographic and echocardiographic studies were performed. **Results.** Seropositivity was confirmed in three cases in the population under study (0.19%). Cardiological studies confirmed the presence of alterations associated to Chagasic cardiomyopathy in two of the three patients. **Conclusions.** The conditions for an active transmission of *T. cruzi* infection are met in the rural localities under study; additionally, the presence of Chagasic cardiomyopathy in underage patients highlights the relevance of an early detection of cases to provide specific treatment at the onset of the infection and to implement epidemiological surveillance as suggested by PAHO/WHO.

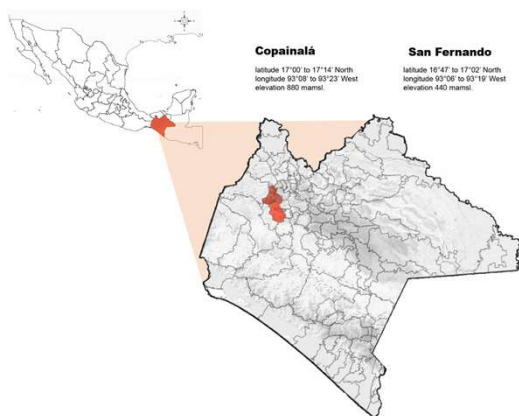


Figure 1. Mezcalapa region, showing the location and geographical information of the study localities. Modified from INEGI, 2010.

Table 1
School pupils with double confirmed seropositivity for *Trypanosoma cruzi*.

CASE	AGE	SEX	LOCALITY AND MUNICIPALITY	*ELISA	**IIF
G.R.L.G.	17	M	San Fernando	0.509	1:256
G.G.M.M.	16	F	Copainalá	0.610	1:128
M.H.R.	16	F	Copainalá	0.485	1:256

*Positive ELISA: ≥ 0.180 OD (490 nm). **Positive IIF: dilution $\geq 1:32$.

According to EKG and ECHO studies, two seropositive students (G.R.L.G. and M.H.R.) showed cardiac alterations compatible with Chagasic cardiomyopathy, indicating that 0.13% of the sampled population was in the chronic symptomatic phase of Chagas' disease; disaggregated by sex, prevalence was 0.12% in male (1/794) and 0.13% in female subjects (1/762). The main clinical and cardiographic findings are described below.

Table 2
Results of electrocardiographic (EKG) and echocardiographic (ECHO) studies on two students seropositive for *T. cruzi*.

CASE AND IDENTIFICATION	BP ¹ mmHg	HR ² beat/min	EKG	ECHO	DIAGNOSIS
G.R.L.G.	80/40	44	Sinus rhythm	Intact interatrial and interventricular septa LVEF ⁴ 54% FS ⁵ 65% PASP ⁵ 38.7 mmHg	IRBBB ³ Normal ventricular function Mild to moderate pulmonary hypertension Mild pulmonary failure Sinus bradycardia
M.H.R.	100/60	74	Sinus rhythm	Intact interatrial and interventricular septa LVEF ⁴ 56% FS ⁵ 28% PASP ⁵ 40 mmHg	IRBBB ³ Mild pulmonary failure Mild pulmonary hypertension Mild tricuspid failure

BP¹: Blood pressure
HR²: Cardiac rate
IRBBB³: Incomplete right bundle branch block
LVEF⁴: Left ventricular ejection fraction
PASP⁵: Pulmonary artery systolic pressure
FS⁵: Fractional shortening

CONCLUSIONS

Seroprevalence values of 0.5% and 0.16% were found for *T. cruzi* infection in the rural localities of Copainalá and San Fernando, Chiapas, respectively. Two cases of Chagasic cardiomyopathy in underage individuals are reported herein, for the first time in Chiapas; along with housing conditions and the presence of vectors in these regions, this finding highlights the importance of continuing the efforts for case detection to give specific treatment at the onset of the infection, and to implement an efficient epidemiological surveillance, as recommended by PAHO/WHO.