

Feasibility, drug safety, and effectiveness of etiological treatment programs for Chagas disease in Honduras, Guatemala, and Bolivia: 10-year experience of Médécins Sans Frontières

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Background

Médécins Sans Frontières (MSF) has provided diagnostic and treatment services for Chagas disease since 1999. MSF provided free diagnostic, etiological treatment, and follow-up care for patients <18 years of age infected with *Trypanosoma cruzi* in Yoro, Honduras (1999-2002; <12 years old); Olopa, Guatemala (2003-2006; <15 years old); Entre Rios, Bolivia (2002-2006; <15 years old); and Sucre, Bolivia (2005-2008; <18 years old).

This report describes 10 years of field experience in these Central and South American programs, focusing on three primary issues: feasibility protocols, safety of drug therapy, and treatment effectiveness.

Methods

Feasibility protocols

The protocols of the four MSF programs were analyzed to identify common, essential components guaranteeing feasibility of implementation.

Diagnosis

Chagas disease was confirmed with blood samples using two different diagnostic tests.

Treatment

T. cruzi-positive patients were treated with benznidazole as first-line treatment, with appropriate counseling, consent, and active participation from parents/guardians for daily drug administration, early detection of adverse events, and treatment withdrawal, if necessary.

Adverse events

Weekly follow-up was conducted, with adverse events recorded to assess drug safety.

Seroconversion

Evaluations of serological conversion were carried out to measure treatment effectiveness.

Results

I. Essential Program Components Guaranteeing Feasibility

Six fundamental components for feasibility guarantee in all the programs were identified:

Essential Program Component	Goals
1. Information, education, and communication (IEC) at the community and family level	<ul style="list-style-type: none"> Correct IEC approach based on local contexts Insight into cultural constraints/health-seeking behaviors Raise public awareness of the disease and availability of diagnosis/treatment services
2. Vector control	<ul style="list-style-type: none"> National program collaboration Disease prevention Prevention of re-infection
3. Health staff training	<ul style="list-style-type: none"> Establish family commitment to treatment and follow-up
4. Screening and diagnosis	<ul style="list-style-type: none"> Identify patients for treatment Optimize diagnostic protocols
5. Treatment and compliance, including family-based strategies for early detection of adverse events	<ul style="list-style-type: none"> Ensure treatment completion Monitor adverse events Proper follow-up care Family engagement
6. Logistics	<ul style="list-style-type: none"> Access to patients Delivery of care to remote areas

II. Patients Tested and Treated

	Yoro, Honduras	Olopa, Guatemala	Entre Rios, Bolivia	Sucre, Bolivia
Program duration	1999-2002	2003-2006	2002-2006	2005-2008
Age group, years	<12	<15	<15	<18
# patients tested	24,771	8,927	7,613	19,400
# patients confirmed positive	232	124	1,475	1,145
Seroprevalence, %	0.9	1.4	19.4	5.9
# patients treated	231	124	1,409	1,040

III. Adverse Events

Program	% patients with an adverse event	# patients with an adverse event	Comments
Yoro, Honduras	50.2	116	<ul style="list-style-type: none"> Most adverse events were mild No differences were seen according to age or sex
Olopa, Guatemala	50.8	63	
Entre Rios, Bolivia	25.6	361	<ul style="list-style-type: none"> Majority of adverse events were mild Adverse event risk increased with age
Sucre, Bolivia	37.9	394	

- No deaths due to treatment were observed.
- Most adverse events were gastrointestinal or dermatological in nature.
- One case of Lyell syndrome (toxic epidermic necrolysis) and 1 case of Stevens Johnson syndrome were reported.

IV. Seroconversion

Early findings of seroconversion varied widely between the Central and South American programs:

Program	Seroconversion, %	Post-treatment follow-up, months
Yoro, Honduras	87.1	18
Olopa, Guatemala	58.1	18
Entre Rios, Bolivia	5.4	18-60
Sucre, Bolivia	0	9-27

Conclusions

The 10-year operational experience of MSF in Honduras, Guatemala, and Bolivia demonstrates that diagnosis and treatment programs for Chagas disease are feasible, relatively safe, and potentially effective in low-income, resource-limited settings.

Drug treatment was safely administered in these programs, with no deaths due to adverse events.

Despite this, nearly half of all patients had some type of adverse event, a few severe.

Variability in apparent treatment effectiveness in Central versus South America may reflect differences in patient populations and geographic parasite lineages, and illustrates the limitations of current treatments and measures of efficacy.

Through the lessons learned from these projects and their common, essential logistical components, we propose that this programmatic approach is feasible at the primary health care level and replicable in other Chagas-disease endemic regions, even in periurban and remote rural areas.

Implementing and supporting such programs will help produce evidence about the importance of extending diagnosis and treatment for all patients in the acute and chronic phases of the disease.

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