

Brief original article

Prevalence of Chagas disease in the Bolivian population of Majorca (Spain)



Pedro Favila Escobio^a, Joana Ribas^{b,*}, Marta G. Morillo^c, Ginna Rodríguez-Ramírez^c, Jeronima Vicens-Ferrer^d, Magdalena Esteva^e

^a Escola Graduada Health Center, Family Medicine Majorca Teaching Unit, Majorca Primary Health Care Department, Balearic Institute of Health, Palma Majorca, Balears, Spain

^b Emergencies Department, Hospital Son Llàtzer, Balearic Institute of Health, Levante, Palma Majorca, Balears, Spain

^c Son Pisà Health Center, Family Medicine Majorca Teaching Unit, Majorca Primary Health Care Department, Balearic Institute of Health, Palma Majorca, Balears, Spain

^d Camp Redó Health Center, Family Medicine Majorca Teaching Unit, Majorca Primary Health Care Department, Balearic Institute of Health, Palma Majorca, Balears, Spain

^e Family Medicine Majorca Teaching Unit, Research Unit, Majorca Primary Health Care Department, Balearic Institute of Health, Instituto de Investigación Sanitaria de Palma (IdiSPA), Palma Majorca, Balears, Spain

ARTICLE INFO

Article history:

Received 8 July 2014

Accepted 23 March 2015

Available online 27 May 2015

Keywords:

Trypanosoma cruzi

Infection

Prevalence

Primary health care

Immigrants

Epidemiology

ABSTRACT

Objective: To establish the prevalence of *Trypanosoma cruzi* infection in Bolivian (Spain) participants.

Methods: A cross sectional study was carried out in Majorca. Bolivian residents older than 18 years assigned to the family physicians of two primary care centers were randomly selected from the health card population database. Participants were invited to attend a serology test and an interview. *T. cruzi* infection was confirmed after two positive ELISA tests. If the result was positive or dubious, the serological test was sent to the National Microbiology Center for confirmation.

Results: A total of 251 participants were included (response rate 36.3%). The overall seroprevalence of Chagas infection was 19.1% (95% CI: 14.06–24.19). Seroprevalence was higher in participants from highly endemic provinces, those from rural areas, those who had lived in mud houses, and in those whose mother or a family member had contracted this infection.

Conclusion: This study demonstrates a high prevalence of *T. cruzi* in Bolivian residents, which was strongly associated with established risk factors.

© 2014 SESPAS. Published by Elsevier España, S.L.U. All rights reserved.

Prevalencia de la enfermedad de Chagas en población boliviana de Mallorca (España)

RESUMEN

Objetivo: Este estudio pretende estimar la seroprevalencia de la infección por *Trypanosoma cruzi* en sujetos bolivianos.

Métodos: Estudio descriptivo transversal en Mallorca (España), en el cual sujetos bolivianos mayores de 18 años, asignados a médicos de familia de dos centros de salud, fueron seleccionados aleatoriamente de la base de Tarjeta Sanitaria Individual. Se citaron en el centro de salud para prueba serológica y entrevista. Se confirma como caso dos pruebas de ELISA positivas. Los resultados positivos o dudosos se enviaron al Centro Nacional de Microbiología para su confirmación.

Resultados: Se incluyeron 251 sujetos (tasa de respuesta 36,3%). La seroprevalencia fue del 19,1% (intervalo de confianza del 95%: 14,06–24,19). La seroprevalencia fue mayor en quienes vivían en provincias endémicas, áreas rurales, casas de adobe o cuya madre o algún familiar había sufrido la infección.

Conclusión: Este trabajo evidencia una alta prevalencia en personas bolivianas residentes que se asocia con los factores de riesgo ya establecidos

© 2014 SESPAS. Publicado por Elsevier España, S.L.U. Todos los derechos reservados.

Introduction

Chagas disease is one of the seventeen called neglected tropical diseases, as well as the parasitosis with the highest morbidity and socioeconomic impact in the American continent.¹ It is caused

by a flagellate protozoan, *Trypanosoma cruzi*, transmitted by the bite of an haematophagous insect.² Approximately 70% of infected patients will continue asymptomatic and the rest will develop symptoms.

Since the 80s, and due to the important migratory movements from endemic areas, it was predicted that in a near future Chagas disease would become a public health issue in non-endemic countries. The lack of identification and treatment increases the risk of health complications and transmission.³

* Corresponding author.

E-mail addresses: janaribases@yahoo.es, jribas@hsl.es (J. Ribas).

Spain is estimated to be, after USA, the country with the highest number of immigrants from Latin America,³ as well as one of the non-endemic countries with the highest prevalence of Chagas disease.⁴ In 2012 there were 1,633,755 Latin American immigrants in our country, from those, a 12.18% came from Bolivia,⁵ where an 80% of the country is endemic. The Balearic Islands present the same figures, with 59,126 Latin American immigrants, of which 10.81% were born in Bolivia⁵. Most of these people will be attended in primary care at sometime therefore, it is necessary to provide estimates of the presence of Chagas infection in primary care Bolivian population. This study aims to estimate the prevalence of Chagas disease in Bolivian subjects living in Majorca (Spain).

Material and methods

We carried out a descriptive study (October 2011–March 2012) in Palma health centers of Escuela Graduada (22,060 inhabitants) and Son Pisà (23,000 inhabitants) with a percentage of non UE immigrant population of around 12%. At the beginning of the study, 8,731 Bolivians were registered with a general practitioner (GP) in Majorca, of those 7,646 lived in Palma city and 1,609 (18.43%) were registered in the study health centers.

Subjects included were those born in Bolivia, 18 years and older. Subjects were excluded if they had a great disability, had no

telephone or rejected to participate. We estimated a sample size of 264 subjects for a 7% prevalence,⁶ a precision of 3% and 95% confidence level. Considering possible low response rate, we decided to contact 691 subjects.

Subjects were selected through computer systematic random sampling from the list of Bolivians registered in the Health Card population data base of the two health centers (where most of the authors were working). Individuals were invited to participate by telephone and given an appointment. After signing an informed consent, an interview and a blood extraction were carried out.

The serological sample was sent to the microbiology laboratory at Son Espases Hospital. A first immunochromatographic serological diagnostic method was performed (SD Chagas Ab Rapid Bioline Standard Diagnostics, Inc) with 90.4% sensitivity and 94% specificity.⁷ A negative test was considered negative for Chagas disease. If the result was positive or doubtful, the sample was sent to the National Microbiology Center laboratory for its confirmation through a second different ELISA (“IFI in house”) with 98.5% sensitivity and 100% specificity.⁸

Data were collected on age and sex; *T. cruzi* risk factors, knowledge about the disease and results of the serology.

The chi-squared test was used to assess the relationship between the prevalence of *T. cruzi* infection and categorical variables and Student's t test for age. A backward conditional logistic

Table 1

Distribution of Bolivian study subjects according to sociodemographic characteristics and Chagas infection risk factors in two health care centers in Palma (Majorca), October 2011–March 2012.

Variables	Total N (%)	Serology + N (%)	Serology - N (%)	p
Sex				
Men	145 (57.8)	22 (15.2)	123 (84.8)	0.06
Women	106 (42.2)	26 (54.2)	80 (24.5)	
Mean age (SD)	34.62 (9.3)	35.5 (10.2)	34.4 (9.1)	0.58
Province of origin				
La Paz	47 (19.0)	3 (6.4)	44 (93.6)	0.08
Santa Cruz	56 (22.6)	11 (19.6)	45 (80.4)	
Cochabamba	111 (44.8)	22 (19.8)	89 (80.2)	
Chupisaca-Potosi-Tarija	22 (8.9)	15 (68.2)	7 (31.8)	
Other provinces less risk	12 (4.8)	1 (8.3)	11 (91.7)	
Time since leaving Bolivia				
<4 years	24 (9.6)	5 (20.8)	19 (79.2)	0.82
≥4 years	227 (90.4)	43 (18.9)	184 (81.1)	
Area				
Rural	126 (50.2)	33 (26.2)	93 (73.8)	0.004
Urban	125 (49.8)	15 (12.0)	110 (88.0)	
House				
Mud	147 (58.8)	36 (24.5)	111 (75.5)	0.01
Brick	103 (41.2)	12 (11.7)	91 (88.3)	
Mother serology				
Positive	14 (7.4)	8 (57.1)	6 (42.9)	<0.001
Negative	176 (92.6)	24 (76.5)	150 (57.1)	
Chagas in relatives				
Yes	67 (30.2)	20 (29.9)	47 (70.1)	0.001
No	155 (69.8)	17 (11.0)	138 (89.0)	
Have seen the insect				
Yes	168 (67.7)	42 (25.0)	126 (75.0)	<0.001
No	80 (32.3)	5 (6.2)	75 (93.8)	
Experience of transfusion				
Yes	30 (12.0)	6 (20.0)	24 (80.0)	0.89
No	221 (88.0)	42 (19.0)	179 (81.0)	
Previous Chagas results				
Positive	39 (15.5)	5 (71.4)	2 (28.6)	0.002
Negative	212 (84.5)	21 (19.6)	86 (80.4)	
Previous Chagas treatment				
Yes	4 (1.7)	3 (75.0)	1 (25.0)	0.006
No	236 (98.3)	45 (19.1)	192 (80.9)	

SD: standard deviation.

Download English Version:

<https://daneshyari.com/en/article/1073157>

Download Persian Version:

<https://daneshyari.com/article/1073157>

[Daneshyari.com](https://daneshyari.com)