

## BRIEF COMMUNICATION

### ANTI-*Trypanosoma cruzi* ANTIBODIES IN THE INHABITANTS OF URBAN AND RURAL AREAS OF ABADIA DOS DOURADOS, STATE OF MINAS GERAIS, BRAZIL

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**KEYWORDS:** *Trypanosoma cruzi*; Seroepidemiology; Chagas' disease

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According to the World Health Organization, human Chagas' disease caused by *Trypanosoma cruzi*, is endemic in 18 of the 26 Brazilian states extending to the 2,222 municipalities. Its importance as a public health problem in the country is due to the high prevalence and geographic extension, which is estimated to cover an area about 3,6 million km<sup>2</sup>, equivalent to 44.5% of the national territory<sup>10</sup>.

The first serum inquiry of this protozoa, performed by the complement fixation test in inhabitants from State of Minas Gerais, in 1930<sup>9</sup>, was performed in the region of Belo Horizonte, being positive 28.4% of the examined samples.

Between 1975 and 1980, the Serologic National Inquiry on the Prevalence of Chagas' disease (SNI) was carried out in the rural inhabitants using blood samples on filter paper and indirect immunofluorescence antibody test (IFAT)<sup>1</sup> resulting 4.4% the positiveness for the Country, 8.8% for State of Minas Gerais and 31.5% for Abadia dos Dourados.

Abadia dos Dourados is a city located in the Alto Paranaíba region in State of Minas Gerais, its population is about 6,424 inhabitants. The purpose of the inquiry in this city was to evaluate the occurrence of anti *T. cruzi* antibodies in the population after 20 years of the SNI. The size of the sample was calculated according to the formula<sup>4</sup>:  $n = Z^2 \times P \times Q/d^2$  considering (Z) of 95%; (d) of 5%; (P) of 31.5% obtained in an SNI, and a non-observed value (Q) of 68.5%; with the size of the sample (n) evaluated at 331.4 persons. This sample was amplified and 501 people were selected at random, 294 in the urban area and 207 in the rural area. These individuals were later identified according to sex and age following the agreement for their participation, being 229 males and 272 female individuals.

Blood samples were collected in July, 1996 by digital punching, with disposable lancets, on paper filter (Klabin 80 g/m<sup>2</sup>) using the

Souza & Camargo methodology<sup>7</sup> and stored in our laboratory at 4°C until the elution time which occurred in August and September of 1996. The IFAT with the eluates was done according to the SNI using FITC-conjugated anti-human IgG, as conjugated. The analysis of the reactions was done using an immunofluorescence microscope (OLYMPUS BH-2 RFCA).

The anti *T. cruzi* antibodies were detected in 17 (3.4%) of the individuals being one (0.3%) for the urban area and 16 (7.7%) for the rural area ( $X^2 = 20.23$ ,  $p < 0.05$ ,  $GL = 1$ ). The SNI prevalence (31.5%) obtained in rural population of Abadia dos Dourados confronts with the one (7.7%) of the present work, these differences were statistically significant at the 5% level ( $Z = 5.73$ ). In the urban area the individual serum positive was from Abadia dos Dourados and of the 16 individuals serum positive from rural areas 15 were born in this city. One individual was from the city of Catalão, in the State of Goiás.

The anti *T. cruzi* antibodies occurrence according to the inhabitants' sexes were 11 (4.8%) from the male and six (2.2%) from female individuals. These differences were not statistically significant at the 5% level ( $Z_{cal} = 1.602$ ).

The ages of the individuals examined varied from two to 78 years. Table 1 shows the comparative serum positivity of the SNI and in the rural area of this study, according to the age category. In what concerns the urban inhabitants the only positive case was a 44 year old woman. In the rural area the positive cases included adult individuals from 27 to 75 years of age. MINEO et al.<sup>2</sup> detected 1.5% for 1-6 years and 0% for 7-14 years in 68 children studied at this city, in January, 1984. The Serologic Inquiry on Chagas' disease among scholars (1958-1960) registered indexes of positiveness from five to 10% in the cities of Araguari, Uberlândia and Uberaba and >10% in the cities of Água Comprida, Araxá and Conceição das Alagoas, among other cities of the State of Minas Gerais<sup>5</sup>.

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TABLE 1

Distribution of serum positivity of two Chagas' disease serodiagnostic inquiries in rural areas of Abadia dos Dourados, State of Minas Gerais, Brazil.

Age category (years)	Distribution of percent serum positivity			
	SNI *		1996	
	n	%	n	%
01 - 06	3	6.8	0	0
07 - 14	3	6.8	0	0
15 - 29	4	9.0	1	6.2
30 - 44	15	34.0	1	6.2
45 - >	19	43.1	14	87.5
<b>Total</b>	<b>44</b>	<b>100.0</b>	<b>16</b>	<b>100.0</b>

SNI = Serologic National Inquiry on the Prevalence of Chagas' disease, 1975-1980  
\*Data supplied by the Division of Chagas' disease, Ministério da Saúde - SUCAM, Brazil

It was verified that all of the serum reagent persons registered a temporary dwelling in clay walled and straw roofed shacks, where *Triatominae* insects had been seen. On the occasion that this inquiry was performed (July, 1996) all dwelling houses in the observed areas were brick walled and tile roofed, free from the haematophagic Hemiptera. The geographic space had changed considerably since the above mentioned SNI: the forests and the primary savannah had been substituted for crop fields insecticide treated, with some areas under the protection of IBAMA (Brazilian Institute for the Environment Protection).

But, the arduous, continuous and efficient work of control of the *Triatominae* in the precarious buildings and surrounding rural areas carried out in Brazil by the National Control Programme of Chagas' disease of the National Foundation of Health (FNS), former - SUCAM, and for SUCEN (Superintendência de Controle de Endemias) in the State of São Paulo, is reducing the natural transmission of the disease in hopes of its definitive control<sup>10</sup>.

The action of SUCAM/FNS in the studied area, since the seventies, have certainly been the main cause of the interruption of the transmission of the disease in the area as indicated by the fact that none younger than 27 years old was found serum positive, similar to the results of ROCHA e SILVA et al.<sup>3</sup> and SOUZA et al.<sup>8</sup> for the State of São Paulo and SILVEIRA & REZENDE<sup>6</sup> for Brazil.

## ACKNOWLEDGMENTS

We are grateful to Maria do Rosário de Fátima Gonçalves-Pires for technical assistance, to Prof. Vanderli A. de Campos for statistical analysis, to Prof. Dr. Uriel Franco Rocha and Dr. David G. Francis for kindly reviewing the manuscript.

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Received: 05 January 1998

Accepted: 28 September 1998