BRIEF COMMUNICATION

ANTI-TRYPANOSOMA CRUZI ANTIBODIES IN THE INHABITANTS OF URBAN AND RURAL AREAS OF ABAINDA DOS DOURADOS, STATE OF MINAS GERAIS, BRAZIL

Eleusa Rodrigues MACHADO, Julia Maria COSTA-CRUZ & Sandra B. P. GOMES

KEYWORDS: Trypanosoma cruzi; Seroepidemiology; Chagas’ disease

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 km², equivalent to 44.5% of the national territory.

The first serum inquiry of this protozoa, performed by the complement fixation test in inhabitants from State of Minas Gerais, in 1930, 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) 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 Paraíba 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: \( n = \frac{Z^2 \times p \times (1-p)}{d^2} \) considering (Z) of 95%; (d) of 5%; (P) of 31.5% obtained in an SNI, and a non-observed variable (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/m²) using the Souza & Camargo methodology 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 calc = 1.602).

The ages of the individuals examined varied from two to 78 years. Table I 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. 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.

Laboratório de Parasitologia, Universidade Federal de Uberlândia, Uberlândia, MG, Brasil.
Correspondence to: Dra. Julia Maria Costa-Cruz, Laboratório de Parasitologia, Departamento de Patologia, Universidade Federal de Uberlândia. Av. Pará 1720, 38400-902 Uberlândia, MG, Brasil. Fax (034) 218-2333.
TABLE 1
Distribution of serum positivity of two Chagas’ disease serodiagnostic inquiries in rural areas of Abadia dos Dourados, State of Minas Gerais, Brazil.

<table>
<thead>
<tr>
<th>Age category (years)</th>
<th>Distribution of percent serum positivity</th>
<th>1996</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>SNI *</td>
<td>n</td>
</tr>
<tr>
<td>01 - 06</td>
<td>3</td>
<td>6.8</td>
</tr>
<tr>
<td>07 - 14</td>
<td>3</td>
<td>6.8</td>
</tr>
<tr>
<td>15 - 29</td>
<td>4</td>
<td>9.0</td>
</tr>
<tr>
<td>30 - 44</td>
<td>15</td>
<td>34.0</td>
</tr>
<tr>
<td>45 - &gt;</td>
<td>19</td>
<td>43.1</td>
</tr>
<tr>
<td>Total</td>
<td>44</td>
<td>100.0</td>
</tr>
</tbody>
</table>

*Data supplied by the Division of Chagas’ disease, Ministério da Saúde - SUCAM, 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.

REFERENCES

Received: 05 January 1998
Accepted: 28 September 1998