Comments on Chagas disease

by

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The high aim of the members of the organizing Committee of the first Medical Congress of Central Brazil, is well expressed in paying tribute to the memory of one who, by his genius, knowledge, faith in science and patriotism, was and will always be one of the greatest sons of Minas. His name symbolizes an ideal which, followed with reverence and conviction, will guide us all through the difficult paths that, as doctors, we have to travel with the object of preventing and curing the ills of mankind.

Carlos Chagas, doctor of humanity by his fine work for the public health, was also a pioneer in tropical nosology. We owe the major contribution to South American medical science to this research worker of the school of Manguinhos and disciple of Oswaldo Cruz. He possessed the combination of the best qualities of the research worker, public health worker and doctor. He studied his masters, in books and in nature of knowledge, always having in mind the idea of using this for elaborating inspired principles whose practical application would result, as they often did, in valuable benefits to public health. Born in the Interior, he conquered the great world centers but never lost sight of his native home. The preventable ailments of the peasantry were a constant concern to him and he left moving incidents of this concern which must be shared by all of us. It has been very wise to raise the flag of his name, and this must have been inspired by his own thought that «the example of the past builds and leads the way».

Chagas' disease or schizotrypanosis is today a disease well known in many of its aspects. In the vast national and foreign literature on the subject it can be seen how this great problem of the Americas has been investigated. Having no intention of describing this infection, I only want to refer to some facts that show the seriousness assumed by this endemic disease by its fre-

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quency and severity especially in Central Brazil where it has been demanding for a long time serious measures from our Public Health Authorities.

The interior of Minas Gerais is well known and similar to the interior of other states. It is also known that in vast rural areas, dwellings are almost always built with walls of mud and wood and with thatched roofs. It is known, too, that the huts (caféua) make an ideal habitat for the proliferation of the most harmful transmitters of Chagas disease, which are perfectly adapted to life in these primitive homes. Many will have seen such huts overrun with these obligatory blood suckers which are the "barbeiros". When, however, one has adequate methods for capturing them, the number of insects which come out of their hiding holes is often surprising. We counted not less than 14,750 triatomids in only 13 of the most infested huts in Bambuí. It is thus not surprising that the number of bugs captured in this and other localities by the Chagas disease station of the Institute Oswaldo Cruz exceed 100,000. The studies of research workers from Minas, particularly Vianna Martins and José Pellegrino confirm that in no way is this infestation by transmitters of schizotrypanosis limited to that region in the west. On the contrary, it reaches at least 204 districts in Minas Gerais (64.5%). It should not be a consolation to consider the tremendous expanse of the Americas in which these harmful blood suckers with their many species are distributed.

If we further consider the high percentages of Triatomid bugs that are infected with Schizotrypanum cruzi, often varying between 25 and 50%; if we realise that man is one of their favourite victims and that their infection originates from his blood; if we know the long life span and the habits of these insatiable and prolific blood suckers which at night increase for years the possibility of contamination of man by their excreta laden with infecting trypanosomes, then we cannot be surprised and, on the contrary, we must expect, as stated by Chagas, the great incidence of schizotrypanosis in regions infected by the domiciliary species of "barbeiros". Whenever systematic searches have been carried out, based on adequate methods for the finding of chronic cases, (complement fixation tests and xenodiagnosis) the truth of Chagas's statements has been confirmed. He himself, however, having not reached the time of large scale investigations, would probably be surprised with the astonishing figures obtained in many places. Studies in Bambuí by the Institute Oswaldo Cruz reveal the alarming frequency of infection in these rural populations. 1920 complement fixation tests done on the sera of unse-
lected individuals were positive in 780 cases, that is, 60.4% as seen in the table below:

**TABLE 1**

Results of 1920 complement fixation tests (antigen from cultures of S. cruzi) in non-selected individuals from: Bambui

<table>
<thead>
<tr>
<th>LOCALITY</th>
<th>TOTAL</th>
<th>POSITIVES</th>
<th>NEGATIVES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bambui &amp; surroundings</td>
<td>184</td>
<td>109</td>
<td>75</td>
</tr>
<tr>
<td>Pedra Branca</td>
<td>151</td>
<td>109</td>
<td>42</td>
</tr>
<tr>
<td>Arraial Novo e Faz. S. Vicente</td>
<td>131</td>
<td>79</td>
<td>52</td>
</tr>
<tr>
<td>Rineão</td>
<td>112</td>
<td>69</td>
<td>43</td>
</tr>
<tr>
<td>Medeiros</td>
<td>100</td>
<td>77</td>
<td>23</td>
</tr>
<tr>
<td>Caxangá</td>
<td>45</td>
<td>33</td>
<td>12</td>
</tr>
<tr>
<td>Various Places</td>
<td>507</td>
<td>304</td>
<td>263</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>1,290</td>
<td>780</td>
<td>510</td>
</tr>
</tbody>
</table>

Pedreira de Freitas, working in rural regions of São Paulo and Minas obtained 511 positive tests out of 996 sera, that is, 51.3%. Using the same test in soldiers of the Second Military Region, Faria et al. found 41 positive sera out of 141 (29.07%). Miron de Menezes found a positive reaction in 32 cases out of 59 from his cardiology clinic in Uberlandia (54.2%). In the capital of Minas itself, Pellegrino and Borrotchin found 37 positives among 181 non-selected patients in Santa Casa Hospital (20.4%). In Uberaba, Rubem Jacomo got out of 226 tests, 119 positive results (52.6%). Considering these results together, we can see that out of a total of 2,893 tests performed in Minas, São Paulo and Goiás, no less than 52.5% show a positive result, revealing the very high incidence of schizotrypanosis in these regions of Central Brazil.

The tragic eloquence of these figures must be borne in mind by the country doctors and the Public Health workers who bear the great responsibility of guarding the health of our people.

Further in the light of other facts, the significance of Chagas infection should be considered as a factor of the first order among those that contribute to ruin the health of the rural population, reducing the productive capacity, stealing lives, bringing unhappiness to humble and helpless homes.

Since the basic work of Chagas, Gaspar Vianna, and Margarinos Torres the affinity of S. cruzi for the heart has been well-known. The
contracting fibres are invaded by multiplying forms of leishmania, which cause an acute myocarditis, which may be of such intensity as, according to Torres, is not equalled by any other disease process in human pathology. The well known classical works of Chagas, Vilela and Evandro Chagas, describe the clinical manifestations of Chagas Cardiopathy, the multiple alterations of the rhythm which reveal the myocardial lesions due to the parasitic invasion. The clinical and electro-cardiographic manifestations of this infection, which from the clinical point of view is essentially a cardiopathy, are known to-day in more detail since the investigations of the Institute Oswaldo Cruz in the west of Minas. From the study of a large group of well-diagnosed cases, the electro-cardiographic picture of the chronic schizotrypanosic cardiopathy became well known and distinguished from cardiopathies due to other causes. In this picture, the disturbances of conduction and stimulus formation stand out by their frequency.

Thus, in 208 cases of chronic Chagas cardiopathy, studied in Bambuí, it was found that 155, or 74.3% showed alterations in conduction, among which Right bundle-branch block (43.3%) and Auriculo-Ventricular Block (30.3%) predominate. As for the disturbances in stimulus formation, the ventricular extrasystoles stand out, occurring in at least 52.9% of the cases. The most serious finding is, however, that the electro-cardiographic alterations indicative of a myocardial lesion were found in about 50% of the cases of chronic schizotrypanosis in the region, as has already been published. At present the Bambuí station of the Institute Oswaldo Cruz deals with 1,600 cases of the disease, of which 780 show electro-cardiographic findings that conform the above-mentioned results.

The idea is thus confirmed that, at least in our country, Chagas disease is essentially a cardiotropic infection.

One can calculate now what this must represent all through the interior, where the transmitting insects abound. There are places where the incidence of the disease is 50, 60 or 70% of the population. And, in certain areas, half the infected adults show electro-cardiographic evidence of a heart lesion. And one knows that all the people attacked by the cardiotropic microbe, even though they may not yet show a heart lesion, are one day likely to suffer from one, and they must be considered as potential cases of heart disease. The conclusions are evident. As a patriot one feels the pain of knowing the tremendous and still not completely estimated extent of this evil which assails our people. Could there be any other epidemic more terrible than this, which thus diffused, irremediably attacks the hearts of
thousands if not millions of our countrymen? If one considers that we cannot even count on the recourse to a therapeutic agent, then one will stress even more the immediate necessity of preventive measures. More so when one realises that practically nothing has so far been done. Does it appear that the picture has been painted too black? I wish this were so, for even though in pessimistic or exaggerated way, we would be fighting to wipe out a real evil. But this hope does not console us for, during the last years, a series of facts have been collected confirming the findings in Bambuí. As soon as the clinical and electro-cardiographic pictures of Chagas disease became better known and adequate laboratory methods of diagnosis started being used frequently, additional evidences showing the importance of Chagas' heart disease were obtained in the States of Bahia and São Paulo and in other parts of Minas Gerais. On the other hand, it has been shown that the cardiopathy which develops in dogs inoculated with virulent S. cruzi is quite similar to the human Chagas' heart disease, both from the anatomic, clinical, radiological and electrocardiographic standpoints.

The following data give an idea as to the mortality. In the inferior, the acute myocarditis of Chagas Disease must cause many deaths, especially in children. In Bambuí, 14 acute cases ended in death in a short time, out of 103 cases observed, which is equivalent to 13.59%. Except for one case of a child who died at 7 years of age, the other were children of less than 5. A personal communication from Dr. Rubem Jacomo says that out of 77 acute cases, studied in Ibirapuera, at least 3 were fatal. As for the chronic cardiopathy, we know that the lethal effect comes from cardiac insufficiency, sudden death, being also frequent, as Chagas had mentioned. The mortality in Bambuí was 8% in 487 cases (39 deaths). Of 37 cases, reported by A. Pondé et al., in Bahia, six died (16.2%). Miron de Menezes reports four fatal cases out of 32 chronic patients observed in Uberlandia (12.5%).

Other considerations would be superfluous to accentuate the gravity, still little understood, of the problem of Chagas Disease in the interior of Brazil. Those already mentioned are more than enough to show the immediate necessity for establishing and putting into action practical methods to combat this disease. The best measure that can be suggested, at the moment, is that a perfectly organised service, that is proved to be of the highest efficiency, such as the National Malaria Service, should assume the charge of starting the fight against the triatomid. It is a pleasure to announce that the Institute Oswaldo Cruz and the National Malaria Service will shortly be carrying out experiments in the Triangulo Mineiro in order to establish techniques for destroying domiciliary triatomids and applicable to wide rural
areas. The insecticide which has, so far, achieved the best results against the "barbeiros" is "Gammexane", which can also be used against mosquitoes. Used in the huts alone or mixed the DDT, will certainly cause a great reduction, if not extinction, of both species of the blood suckers, freeing the treated zones of two of the greatest ills of the interior, schizotrypanosis and malaria, as well as causing other benefits. Another useful suggestion, complementary to the first, is that the Secretary of Health and the State Departments of Health should begin at once in their respective states to charter the areas infested with the domiciliary vectors of Chagas Disease, completing the knowledge of the epidemic zones that in many parts is still poor. This will facilitate the planning and carrying out of future campaigns for "de-barbeirisation".

Lacking the necessary brilliance, we think it very opportune to end this talk, using the brilliant words and thoughts of Carlos Chagas: "To the conscience of the Nation, to the zeal and the responsibilities of the governments, the doctors have for a long time denounced with their authority and public spirit the states of helplessness in which our country people remain, these same people who work and produce, defenseless people in these vigorous-tropical surroundings, in which abound both the factors of creation of life and those of destruction and death, degraded people, anaemic, weak and exhausted, still missing the resources of science in the fight against disease and in the aids to health, people to whom all the initiatives are lacking, all the enterprise, all the happiness of healthy life, and to whom the living agents of disease in their constant aggression degrade, people abandoned but resigned, whose misfortune demands the pity of men and is a witness to the improvidence of the State".

To end, let me ask you to approve the resolution that you propose, that the First Medical Congress of Central Brazil and the Third of the Triângulo Mineiro send a motion to the Minister of Health and Education calling his attention to this serious Brazilian problem. That in this motion, it be asked of his Excellency that he recommend to the Director of the National Department of Health and the Director of the National Malaria Service, as well as to all the authorities the may judge necessary or convenient, suggesting measures for launching an effective basis for a redeeming campaign which may be long and hard but which we must demand in the name of thousands and thousands of our humble countrymen.