Chagas disease centenary

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Dear Editors

Knowledge about Chagas disease, a significant rural endemic in several countries in Latin America, first started in 1909. At the time Brazilian scientist Carlos Chagas was carrying out scientific investigations, nothing similar to which has ever been done since. The relevance of this research was due to the worthy fact that this doctor, without the technological resources that are now available, unveiled and single-handedly highlighted the fundamentals of a sickness: for the first time ever he proved the existence of a protozoan which became known as *Trypanosoma cruzi*, in a tribute to Oswaldo Cruz, his work colleague at research institutions. He revealed that this parasite infects people through the feces of a triatomine insect, which feeds exclusively on blood and has various popular names, such as "*barbeiro*" ["kissing bug"]. He proved that this protozoan causes a sickness that is infectious in humans. He also found at least one wild reservoir of trypanosome. Unusually, because of the competence of this single academic, such light was shed on the subject, resulting in his receiving an important international prize.

It is easy to understand why the sickness is called Chagas disease.

What happened caused concern in the public health sphere and in the community, in general. However, there was a setback. The writer and public health specialist, Afranio Peixoto, put forward an opinion according to which this sickness was not important and would not cause the problems that were both forecast and feared. As a result, the whole matter began to "cool down". Obviously, the famous man of letters and his followers were wrong.

It must not be forgotten that Salvador Mazza, from the Argentinian Mission for Regional Pathology Studies and Rodolfo Talice, in Uruguay, pointed out many aspects of the sickness, thus lending weight to the conviction that Chagas disease demanded care and clarification and had to be faced up to. Let us remember how Talice characterized it: Chagas disease reveals the dire conditions under which a large part of the population of Latin American countries lives.

Carlos Chagas' merit is undoubtedly huge. Two details, however, led to indecision: the inclusion of thyroidopathy and neuropathy among the damage caused by the infection. It is possible that investigations carried out in places where this type of problem was common gave rise to the association with parasitosis. Everything is clarified and the news became irrelevant curiosities. Let us not forget that the resources that subsequently ensued did not exist at the time.

Different assessments, specially epidemiological ones, identified the poor significance of the disease, showing large numbers of those afflicted by it, some even severely. Mazza contributed substantially to demystifying the unsustainable belief of those who doubted it. Excellent work was done in the sectors of etiology, epidemiology, clinical studies, diagnosis, disclosure and necessary or available ealth care. This was all coherent with the professionals who were involved with elucidating aspects of the disease.

Skilled, capable and outstanding researchers continued to thoroughly investigate this noteworthy parasitosis. We are probably not being totally fair, but those mentioned represent the pleiad of all the illustrious collaborators. We would, therefore, mention Aluízio Prata, Amilcar Vianna Martins, Anis Rassi, Antonio Walter Ferreira, Astolfo Ferraz de Siqueira, Edison Reis Lopes, Emmanoel Dias, Eurico Vilela, Evandro Chagas, Fritz Köberle, Francisco Ferrioli Filho, Humberto de Oliveira Ferreira, João Carlos Pinto Dias, Joffre Marcondes de Rezende, José Lima Pedreira de Freitas, José Rodrigues Coura, Maria Aparecida Shikanai Yasuda, Mario Endsfeld Camargo, Masayuki Okumura, Oswaldo Paulo Forattini, Ricardo Ribeiro dos Santos, Sonia Gumes Andrade, Thales de Brito, Vanize de Oliveira Macêdo, Zigman Brener and Zilton de Araújo Andrade, among others.

The ever-desired prevention was never forgotten. Proposals were put forward, but only very recently did they achieve outstanding success. Detailed programming, political will, a strong injection of funds and excellent coordination by João Carlos Pinto Dias succeeded in interrupting the labeling of trypanosome as a vector, which has been recognized by the Pan-American Health Organization/World Health Organization.

The "*barbeiro*" breeds in rudimentary houses made of wattle and daub, also known as adobe. These dwellings are more suitable for insects rather than for people. The fight against the vector, which has been duly carried

out, and parallel improvements in the agrarian sector have reduced the improper housing and resulted in the eradiation of the *barbeiro* in Brazil.

It is now necessary to persist with a wide-ranging and effective epidemiological health watch, paying permanent attention to the matter. The arrival of wild *barbeiros* is feared, as is the insidious invasion of areas so far free of this insect. By the way, we note the current attention that is being given to the presence of the disease in the Amazon, an issue that was little focused on in the past. Furthermore, transmission of the disease which was qualified as "exceptional" and which we believe is better described as "alternative", despite receiving different emphases, were incompatible components with what we know of the way the insects behave. Increasingly common occurrences of the disease are giving rise to large numbers deriving from causes such as congenital, transfusional, and laboratory-accident types, and those resulting from organ transplants, maternal milk and oral contamination. Pertinent prophylactic measures are undoubtedly needed urgently.

In Brazil, there are currently about 2,500,000 individuals infected by *Trypanosoma cruzi*. The infections vary in intensity. There's a need to plan for suitable medical assistance, covering care and attention, instructions and the use of possible measures, depending on what is therapeutically correct for each case. Between 1978 and 1983, an estimate resulting from a well-constructed inquiry indicated a number of around 5,500,000. There are various reasons for this reduction, including Chagas disease mortality. Logically, the number will reduce in line with the prophylaxis that is now available.

The sickness has been described in depth and in praiseworthy fashion. However, on the hundredth anniversary we are sorry about the lack of three items of progress. Firstly, no one has managed to provide a complete explanation of the etiopathogenesis, which would explain how the parasite damages the organism; if fully clarified the longed-for benefits will follow. Secondly, we have no serological proof that is totally trustworthy, once none of them is infallible, despite having very useful and numerous proofs. Lastly, the failure to guarantee help, whether in the form of medication or not, that is capable of eliminating the agent that causes the infection; since the 1940s we have known research linked to this issue and currently we only have two drugs, which is insufficient if we want to get anywhere close to what is ideal.

Chagas disease appears to be ignored by the pharmaceutical industry, assistance programs, university centers and funding agencies, when what is most desired is the cure for it. Chagas disease and other endemics in Brazil are ignored by pharmaceutical companies and by international research headquarters. Given the profits available, this disease does not constitute a matter of importance. Material gain takes precedence over benefits for public health and, consequently, for "people". The situation in neighboring South American countries differs from what is being achieved here. We hope they do not weaken.

We recognize that research funding agencies have helped Brazilian researchers substantially. Out of this came some worthwhile collaboration. We suggest, however, that studies be objective and give priority to projects that aim for the advances that are needed, not just prizes in public and university events.

A vaccine, or something similar, for providing protective immunity against the infection is commonly wished for. Attempts to find an acceptable solution have not gone beyond the utopian stage. We may consider that, at present, there is no room for using these means in Brazil. In the other Latin American countries, the focus may differ from what we consider here.

In conclusion, we celebrate the exemplary and splendid work of Carlos Chagas and praise the subsequent, rather slow, but advantageous scientific and health care work that has been done. All that remains is to hope that more progress is made, especially with regard to particular aspects that have not yet been overcome.

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