

Clinical Evolution and Morbi-mortality in Chagas Disease

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The knowledge firstly achieved by Carlos Chagas and his colleagues of the Instituto Oswaldo Cruz, increased with all those acquired to date, allow us to outline the general scheme (modified from Dias & Coura 1997) of American trypanosomiasis natural history (Figure).

The knowledge of this natural history makes more comprehensible the clinical evolution of the disease, as it will be demonstrated by the reporters of the subject.

The Chagas Disease Control Campaign, together with other conditions, has contributed in a decisive way for the significant reduction of the number of new cases of the disease. Nevertheless, millions of chagasic individuals still live in our country as well as in other ones of Latin America (Moncayo 1993, Schmunis 1997, Dias & Coura 1997). Only this would be enough to justify the concern with morbidity and mortality due to American trypanosomiasis.

In addition, the current data about morbidity (analyzed either by the number of individuals who acquire the disease or by the number of cases in which trypanosomiasis has arisen), as well as the coefficients or rates of mortality allow the understanding of the severe medicosocial problems continuously generated by the endemic.

In the other hand, the prophylactic and therapeutic measures can explain the significant reduction of morbidity and mortality rates in Chagas disease (CD) acute phase in the last years, as it may be confirmed by comparing Chagas references (1910, 1916) and Chagas and Villela (1922) with those of Dias (1955), Ferreira (1986) and Dias and Coura (1997).

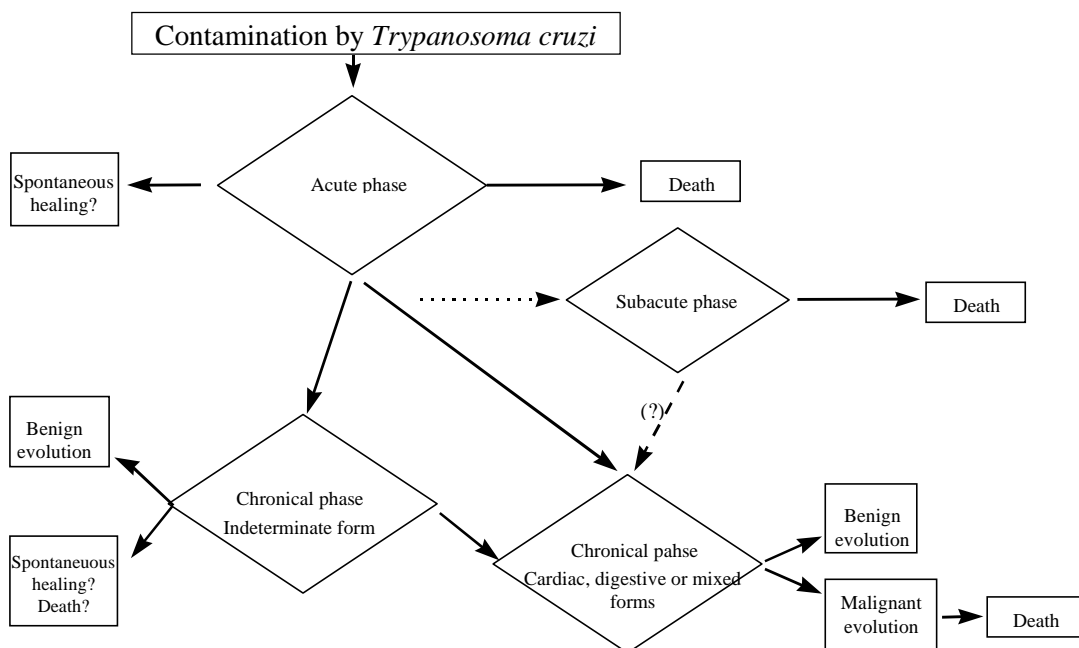
In order to analyse the morbidity and mortality in chronic CD, two facts must be initially remembered: first, in the chronic phase of American trypanosomiasis, the main lesions are situated in the heart and digestive tract; second, the digestive form of the disease was characterized only in the 50s (Rezende 1956). This last fact may explain the lack of references on digestive manifestations in chronic CD in the first half of century (Chagas 1910, Chagas & Villela 1922), what reflects on comparative analyses, specially regarding morbidity.

In conclusion, it is clear since the beginning of the studies on CD that cardiac alterations are the main responsible for morbidity and mortality.

Longitudinal studies as those carried out initially in Bambuí, State of Minas Gerais, Brazil, followed by other more recent ones as those of Macedo (1973) and Dias (1982), allow us to conclude that only half of the individuals infected with *T. cruzi* show, in the course of their lives, clinical manifestations of CD; among those, only about 50% die as a direct or indirect result of the infectious course. Mortality is generally high among chagasic individuals who develop chronic cardiopathy, mainly when cardiac failure and/or severe arrhythmias occur. Grossly, it means that 25% of the chagasic individuals (which correspond to 350,000 people in Brazil) are bound to die because of CD. The death official registry service in Brazil indicates that the mortality due to disease is about 6,000 deaths/year, prone to decrease in the last decade. In Latin America, Moncayo (1993) evaluates that 45,000 yearly deaths are due to CD.

In the micro-regions of major endemicity, the death rate due to CD among adult individuals may reach 200 per 100,000 inhabitants or more. These rates are surely underdimensioned since that a significant number of deaths due to chronic chagasic cardiopathy are registered as either due to non defined causes or lack of medical care or due to other cardiopathies.

Data from the World Bank in 1993 show the enormous social burden as a consequence of CD. This burden is significantly greater than that produced by other tropical diseases prevalent in the Americas. Malaria, schistosomiasis, leishmaniasis, filariasis, oncocercosis and leprosy produce all to-



General scheme of natural history of human Chagas disease acquired form (modified from Dias JCP 1990).

gether a burden corresponding to not more than a fourth part of that caused by CD.

The reporters of the morbidity and mortality themes in CD will treat the subject more properly and profoundly.

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