

The social determinants of Chagas disease and the transformations of Latin America

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“It has been said that Chagas disease is a forgotten disease”, stated Dr JC Pinto Dias in the initial conference of the seminar. “But, what really exists”, he added, “is a forgotten population”. It is not the disease that was neglected, but rather the people who suffer it or who are at risk of contracting it who have been abandoned by governments and health policies. These words marked the tone of the discussion on the current situation of Chagas disease, because the social determinants of the disease were discussed throughout the entire workshop, since it was not possible to encompass them in one or another topic, because when each one of the speakers or participants referred to the vectors, houses, blood transfusions, programs of control, at the same time people, poverty, migrations, companies, changes in government appeared. And it has to be so, because the process of transmission of Chagas disease, as well as its prevention, control or treatment, are social and political processes that occur or change with the fluctuations of the contemporary history of Latin America.

THE RURAL AND URBAN FACES OF THE DISEASE

For many decades Chagas disease was a strictly rural illness, existing only in specific zones of the countryside marked by poverty and exclusion. The disease was symbolized by the peasant family and the rural hut full of triatomines. Nevertheless, changes in the rural areas, migrations to the cities, increase of poverty in the urban areas, has transformed the disease into an equally urban phenomenon. The symbol is no longer the rural hut, but blood banks, immigrants, and patients in hospitals seeking help and attention. When at the beginning of the past century Carlos Chagas (1909) described the disease, 90% of the population of Latin America lived in rural areas and the disease was there; at this time, at the beginning of the XXI century, in all countries there are more people in the cities than in the countryside and altogether more than 70% of the population is urban (Celade 2004), therefore it is to be expected that the disease has moved there.

The rural population in Latin America has decreased in relative terms, but has remained stable in absolute numbers, what has occurred is a notable increase of the urban population and also an increase of the poverty of

the cities. In 1980, according to the calculation of the Economic Commission for Latin America and the Caribbean (Cepal 2004), “moderate” poverty, that is, those who could meet their needs for food but not much more, was represented by a total of 73 million people in the rural areas and 136 million in the urban areas. Two decades later, that is in 2002, the number of people who lived in moderate poverty in rural areas had hardly increased by 1.8 million, to approximate 75 million, while in the urban area it had increased by 85 million new urban poor to reach 221 million.

The situation with extreme poverty was different at the beginning, but later the same change is produced and in an accentuated manner. “Extreme” poverty refers to family groups that do not even manage to meet their food needs and in 1980 it was made up of 40 million people in rural areas and 22.5 million in urban areas, that is, there were more people in that situation in rural areas than in urban areas. But, 22 years later, the number of people in extreme poverty in the countryside had increased by only 6 million and in the cities by 29 million, so that the number of people in extreme poverty in the cities reached 51.6 million, exceeding in the new century those that exist in the countryside: 45.8 million (Cepal 2004).

These data reflect the changes and the faces of Chagas disease, because the poor of the countryside continue having the conditions in their houses and environment for the vectorial transmission of the disease, while the urban poor represent the increasing face of the disease, because in some cases they transport the vectors to their new residences, but many carry with them the infection to the cities that are not totally prepared for their attention and care.

SPRAYING PROGRAMS AND RURAL HOUSES

The seminar recognized the noteworthy effort that is being made in the region for the vectorial control of the disease through different regional initiatives, such as that of the Southern Cone, Central America and Mexico, Andean region, and recently the Amazon forest. While at the beginning they involved an effort of multinational coordination to reduce costs in purchases, especially of insecticides, they were later transformed into a true agreement for scientific, technical, and administrative cooperation.

The oldest and most successful experience is that of the Southern Cone which has achieved important advances in the eradication of *Triatoma infestans* through spraying of houses. Nevertheless, the success attained shows a new situation of risk from the presence of secondary species and the existence of residual foci in the peridomicile.

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The continuity of programs of control requires political agreements, but the sustainability implies a permanent oversight and the transformation of the material conditions of the house and the peridomicile to make the colonization or reinfestation of the houses by the vector insect of the disease difficult. The challenge of a healthy and decent house for the population covers much more than the interruption of the transmission of Chagas disease, it implies and favors other aspects of health and even more of the social welfare of families. For that reason, the actions involving improvement or modification of housing are very relevant when policies change their focus of attention from the disease to the health of the population.

In Latin America there have been diverse programs for improvement of the house in different countries such as Argentina, Bolivia, Paraguay, Honduras, Venezuela, El Salvador. Some of these programs have had a direct orientation toward Chagas disease, in other cases this has not occurred; in some community participation has been stimulated or required, in others not, but altogether they have proven to be of great importance in the sustainability of the control of the disease. Two very distinct examples of interventions in housing and their effect on the vectors of Chagas disease are represented by Venezuela and El Salvador. In both countries *R. prolixus* has been an important vector in the transmission of the disease, but in Venezuela it is autochthonous while in El Salvador it was introduced (Zeledón 2004). In Venezuela, for several decades, a rural housing program was carried out that permitted building more than 400,000 houses, it was a program of the central government, in which a part of the petroleum income that entered the country was invested. At the beginning of the program in the 1950s, a complete community participation was promoted, later in the 1960s the role of the family in the building of the house was reduced until participation fully disappeared at the beginning of the 1970s when the price of petroleum and government income tripled (Briceño-León 1990). The situation in El Salvador has been different, because it is a small and poor country that experienced a painful internal war producing a strong migratory wave to the United States, Canada, and Australia. In El Salvador there were two types of vectors, *Rhodnius prolixus* and *T. dimidiata*, that colonized peasant houses made of mud walls and roofs of plant material, but at this time, Dr C Ponce reported in the seminar that *R. prolixus* does not exist any more, because the houses where they lived were transformed by the population itself and they no longer have conditions for their colonization (Proyecto SSA-EC 2005). The situation of El Salvador is very interesting, because starting from the peace agreements, a process of agrarian reform was initiated that allowed giving ownership of the land to the peasants and at the same time emigrants began to send important amounts of money that today are the principal source of foreign exchange of the country and that families invested in the improvement and construction of houses of good quality. In this manner families on their own, without direct intervention of the government, managed to eliminate one of the vectors of the disease. The paths can be dissimilar, but the improvement of the house continues to

be a fundamental challenge in the sustainability of the control of the disease.

STIGMA AND CULTURE OF THE DISEASE

Chagas disease has a dual situation in the culture of societies, on one hand it can be ignored, it is a nonexistent disease because the political or sanitary authorities ignore or neglect it, because it occurs among distant populations and without immediate lethal or political consequences because it is a chronic disease. On the other hand, in many places the diagnosis is not reported to patients, and as was pointed out in the seminar, it is paradoxical that even though it bears the classification of disease in its name, people do not consider it as such because they do not see people becoming sick or dying from it.

But together with that situation of ignorance and silence, there is another equally dramatic one that is given by the stigma from suffering the disease. The stigma may have social consequences, because it can lead to a social rejection on evoking a poor and rural past, or it can mean a labor restriction, because it is supposed that it will lead to some type of limitation or difficulty at the time of performing a job or financial consequences for the employing firm. In a paradoxical manner, some measures such as National Law of Argentina No. 22360 of December 23, 1980, that obligates presenting a serology of Chagas to “the candidates for permanent or transitory jobs”, have created an undesired effect, because although it is assumed that it is designed to protect the Chagas patient, in practice it has become a discriminatory mechanism since employers reject the seropositive and the patient is obligated to accept another type of employment with a precarious type of labor contract because it is the only one that is available to him.

The symbolic representations of the vector and of the disease are very varied and change from one area to the other, in the same manner that the multiplicity of names with which they designate them in some cases can symbolize good luck, while in others it is death. What would seem to be a general rule is that there is no culture or systematic protection that allows combating the vectors and avoiding the disease (Briceño-León 1998). This same situation described above, simultaneously of silence and stigma, has not contributed to the creation of the cultural mechanisms of protection of the population.

GLOBALIZATION AND CHAGAS DISEASE

Changes in the form or production, commerce and finance in the world are affecting the presence of Chagas disease, and this can be clearly seen in two processes that occur in completely different spaces, on one hand the presence of Chagas disease in the United States and Europe from the increasing arrival of Latin American immigrants, and on the other, from the novel and increasing presence of Chagas disease in the Amazon jungle.

Communications have been facilitated and increased in a surprising manner in the globalized world and that has made local problems expand to global spaces and to global forces intervening in local decisions. Dr R Zeledón reported how a cactus flower that appears in semi-desert areas of Central America has had great suc-

cess among flower lovers and this has led them to be sold throughout the region, but even their export to North America, with the particularity that in the bromelia there are specimens of *R. rickmani* what are transported together with the flower to distant destinations with the probability of the dispersion of triatomines. And in origin this is what is happening with the occupation of the Amazon jungle and with Latin migrants who donate blood in the US, global forces that have repercussions in the dispersion of the disease.

In the Amazon jungle in spite of finding a large quantity of vectors and of animals that are reservoirs of the parasite, it was only recently that autochthonous cases were found and a notable increase of them can be anticipated through the process of human migration and deforestation that occurs in the region (Coura et al. 2002, Junquera et al. 2005). But it is necessary to understand these processes in the changes of the patterns of territorial occupation of the Amazon jungle and the forces involved there. In the 1950s and 1960s, plans for use of the Amazon jungle were in the policies that were called growth toward the interior, that is, development of the society occupying the internal frontiers in order to guarantee an economic activity that could meet the demands of the internal market and strengthen the process of national industrialization. Nevertheless, what is observed starting from the 1980s, when there is the great occupation of the Amazon jungle in Brazil or in Ecuador, is a different process, because it is oriented to the external market (cattle for export, soybean for the Asian market, wood and petroleum for the world market), a process leading to some important changes such as deforestation, eliminating the sources of wild nourishment of the vectors; a process of occupation of new territories; the increased sedentary nature of the population; the diffusion of a new type of house and the incorporation of the presence of domestic animals in the home (Coimbra & Santos 1994, Coimbra et al. 2004), all of which produces an attractive habitat that can be visited and colonized by the vectors of the disease.

A distinct force acts in the case of the migrations, now not involving the disease occupying new spaces of Latin America itself, as occurs in the Amazon jungle, but rather moving to non-endemic areas and without the vectorial presence from the movement of people, whether for reasons of expulsion – poverty, violence – from their own countries, the attraction of a better life in other countries, they move to distant lands. In the United States it is calculated that there are 40 million hispanics, 16 million of them born abroad, the great majority Mexicans, some 10.6 million, and then there are 2.1 million Central Americans and 1.4 million natives of South America (Census Bureau 2004). In Spain at the end of 2005 there were close to two million foreigners with residence permits, almost half of them from Hispanic America: 826,000 persons. Of them, 348,000 are Ecuadorians, 172,000 Colombians, 73,000 Peruvians, 50,000 Argentines, 49,000 Bolivians, 17,000 Brazilians (Ministerio del Trabajo y Asuntos Sociales 2006). A good part of those immigrants comes from areas where Chagas disease is endemic and they may be seropositive, the new reality of the disease shows a population

that can become a blood donor in areas where screening for the disease is not performed, they can bear children with the infection and they can seek health attention at the time that the disease develops, without finding an adequate response from the health system. This in some way already occurs with internal migrations in many cities of Latin America, although the response of medical attention is very slight and with little information and knowledge about the disease, at least there is the obligation in all countries to carry out blood screening (Schmuniz 2005). But the situation in countries receiving immigrants from the endemic zones of Latin America is very different and is going to require important responses from the health systems of those countries in forthcoming years.

CHANGING HEALTH POLICIES

The seminar discussed two aspects that have affected programs of control: on one side, the instability of programs in the provision of resources and execution, due to the presence of other new infectious diseases. And on the other, processes of decentralization of health programs that have taken place in the continent.

The programs of control of Chagas disease have been from the beginning to be subject to the successes and urgencies of other diseases, in particular of what has occurred over time with malaria and dengue fever. In Venezuela the launch of the Chagas program at the end of the 1950s was a consequence of the notable success that had been attained in the campaign against malaria. The campaign had been initiated at the end of the Second World War and a decade later the government of Venezuela had managed to declare the eradication of malaria in a vast territory, but it maintained personnel and human resources that it could not waste, the program for the control of Chagas disease was founded, and those resources fed it for several years until new outbreaks of malaria appear first at the beginning of the 1980s, and then of hemorrhagic dengue fever at the beginning of the 1990s. Starting from this, the Chagas program lost resources and relevancy until it almost disappeared, but not because the epidemiological situation had notably improved, but because competition from other diseases detracted from its importance (Añez et al. 2004). Something similar, although in different magnitudes, occurred in several countries and still marks the current instability.

Another aspect that was broadly discussed corresponds to the decentralization process that accompanies the processes of state reform in Latin America after the 1980s. Endemic disease control programs, traditionally vertical and centralized, were dismantled or transferred to the regional or local authorities without the corresponding preparation or transfer of resources and training. In some cases, such as Colombia, the Chagas program that had been created at the end of the 1990s disappeared with decentralization; in other cases, local authorities that did not grant it importance or did not know how to carry them out assumed it (Guhl et al. 2005). The policy of decentralization, while it is an adequate response to bring the actions of government closer to the people and communities, has had very contradictory effects, because it has not achieved a true participation

of people or communities. Decentralization and participation must go together in a decentralized and horizontal program, and this is important above all at the time when there has been a significant reduction of the number of domiciliary vectors, but where the disease still persists, because traditional programs lose their effectiveness where there are a small number of vectors, since it is required that specific measures be applied that demand the participation of families and local authorities for their sustainability.

In addition, the importance of the participation of Chagas patients and the relevance of organizations constituted by them was emphasized as a manner to combat the stigma and fatalism that in the absence of cure attack many of the seropositive patients.

Moreover, an innovative approximation is required in the environmental management for the control of the disease, with transformations in the habitat: the house and the peridomicile and the ecological environment. The experiences of Mexico in malaria and dengue programs and of Central America with Chagas disease itself were discussed with interest, because they reflect a process of social and environmental transformation that is slow and complex, but with more lasting effects because they imply the participation of communities at risk.

CONCLUSION

Chagas disease is a profoundly social disease, therefore changes in the society, positive or negative, are reflected in the situation of the disease and in programs of control. The scientific community has greatly advanced in the comprehension of the disease, its prevention and treatment, but a process of continuous adaptation to new realities in the countryside and the city and to the process of internationalization of the illness is required. This need for continuous adaptation involves both research centers and programs of control, because the problem has become more complex given that the need for vectorial programs in rural areas persists, but new epidemiological situations derived from the globalization process and the need for attention to patients in zones where the disease is unknown have been created. The response that at the beginning of the XXI century must be given to Chagas disease as a neglected disease cannot be exclusively entomological or medical (Ehrenberg & Ault 2005, Briceño-León 2005) it must be given in a broader social and sanitary context that involves distinct levels of the government and of the civil society, it must be a holistic approach that is oriented not to avoiding the disease but to promoting the health of the population as a means to achieve development.

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