Chagas Disease
American Trypanosomiasis

What is Chagas Disease?

Chagas disease, or American trypanosomiasis, is a parasitic disease caused by Trypanosoma cruzi and transmitted mainly by the insect called triatomine, also known as ‘assassin bugs’ or ‘kissing bugs’. It is endemic in 21 countries in Latin America. Cases have also been reported in Europe, USA and Japan. A disease associated to socio-economic exclusion. The WHO estimates that there are eight to ten million cases worldwide and that the disease kills 12,500 people each year, making it the largest parasitic killer in the Americas.

In its natural clinical course Chagas disease (without treatment) has two phases: acute and chronic. The acute phase may be symptomatic, but is usually asymptomatic lasting 60 to 90 days characterized by the presence of T. cruzi in the direct parasitological examination of the blood and the chronic phase characterized by low parasitemia and high levels of antibodies (IgG). It presents itself in one of the following clinical forms: indeterminate, cardiac and digestive. Without diagnosis and etiologic treatment in the early stage, approximately 30 percent will develop problems in their heart, and 10 percent might develop irreversible gastrointestinal damage in the chronic phase of the disease.

The majority of people infected with T. cruzi will not develop symptoms of disease for years. Since it is impossible to predict who will develop the disease, many patients usually die suddenly in early adulthood without ever knowing they had Chagas disease.

Transmission and Diagnosis

The transmission of Chagas disease can be categorized in three cycles: domestic, peridomestic and sylvatic, each with peculiar characteristics determined by the vector species and its biological behavior, the presence of wild or domestic animals that act as reservoirs, as well as socioeconomic and environmental factors. The most common transmission mechanisms are; vectorial, transfusional, congenital and oral transmission (through contaminated food).

Available rapid diagnostic tests (RDT) having so far shown insufficient specificity, diagnosis still requires confirmation through laboratory tests. In many cases, the endemic countries do not have the necessary facilities or staff available to carry out these tests. It is essential that communities living in endemic zones have access to diagnosis and can find out if they have been infected with T. cruzi.

Vector control strategies, which are fundamental to limit the spread of the disease, depend on detecting the vector and spraying houses and peri-domestic areas with insecticides. Nevertheless, in some areas, the assassin bugs have been found to be resistant to certain products. To eliminate the insects from houses, spraying must be continuous and housing must be improved. It is important to conduct vector control activities in parallel to treating patient to avoid re-infection and increased parasite load of the patient. In addition, greater effort must be made to ensure the quality of blood banks to avoid contamination from transfusions, prevent congenital transmission and early detection and treatment of all patients infected. The lack of a precocious test of cure makes it difficult to prove the effectiveness of treatment.

Treatment

There are currently only two medicines to treat Chagas disease: benznidazol and nifurtimox. The first one is produced by only one company and its availability is in jeopardy. The second drug is used when the first-line treatment fails as patients present more side effects with nifurtimox. Both drugs were developed over 40 years ago in investigations not specifically aimed at Chagas disease. Presently, neither of these drugs is adapted for paediatric use or for use by pregnant women. The success rate reaches almost 100 per cent in acute cases. However, for chronic cases this treatment is much less effective and can have multiple side effects, and therefore has to be taken under medical supervision.

Recent studies demonstrate that it is feasible and worthwhile...
to treat patients in the chronic phase, even after the heart is mildly affected (initial clinical forms of the chronic phase). As the side effects of the treatment are more common in older patients, doctors have been reluctant to administer the medicine out of fear of the consequences. Nowadays we know that the adverse effects are manageable with regular medical follow-ups and we have not had deaths by treatment in our projects.

**MSF and Chagas Disease**

MSF has provided free diagnosis and treatment for Chagas disease since 1999 in countries including Honduras, Nicaragua, Guatemala, Colombia, Bolivia and most recently Paraguay, using different operational models of intervention. Currently MSF runs projects in Bolivia—the country with the highest disease prevalence in the World—just across the border in Paraguay, and Colombia. Between 1999 and 2011, MSF has tested more than 80,000 people for Chagas and treated more than 4,200 patients. This shows that although current resources are not ideal, the diagnosis and treatment of Chagas disease is viable in environments with limited resources and remote areas if various coordinated activities are carried out.

**Challenges**

With the limited resources currently available to treat Chagas disease, medical teams have to deal with many shortfalls and at times don’t have any treatment options. Millions of people suffering from Chagas disease, especially in rural areas, have neither the opportunity to find out that they are infected nor the possibility of being treated. Secured production of benznidazol, new diagnostic tests, better medicines and a test for cure are urgently needed to provide wider access to quality diagnosis and treatment for this disease.

**MSF is calling for:**

- **Inclusion of diagnosis and treatment of Chagas disease as part of any disease control strategy** in addition to the current focus on vector control by governments of endemic countries, funders and WHO/PAHO.

- **Systematic testing and diagnosis of Chagas disease at the primary care level in endemic areas and parts of the world with population movements from endemic areas:** The lack of resources at the primary health care level limits proactive and integrated approaches.

- **Increased access to treatment for children and adults in the primary care system:** Millions of people, especially in rural areas, have neither the opportunity to find out that they are infected nor the possibility of being treated.

- **Integration of vector control with treatment of patients:** Ineffective prevention efforts cause the insect and the disease to reappear and patients to become newly infected or re-infected.

- **Improved estimates of the burden of disease:** The burden of Chagas disease is significantly underestimated in official statistics. Inadequate systems for surveillance and reporting of this disease translate into severe underreporting of new Chagas cases in endemic and non-endemic regions, leading to a lack in demand forecasting data for the medicines.

- **Evaluation, validation and rolling out of currently available RDTs:** The diagnostic accuracy of RDTs already available in the market should be evaluated and validated. Simple and affordable diagnostic tools are required to make diagnosis of patients in the field accessible.

- **New diagnostics urgently needed:** A test for cure is urgently required to be able to confirm success of treatment for the patient, and is essential in confirming efficacy for new drugs. This requires long-term investment and commitment to be made by laboratories, investigators and funders.

- **New treatments urgently needed:** Current treatments consist of two medicines developed more than 40 years ago that have limited efficacy in the chronic phase and a significant risk of severe adverse-events. Pediatrics formulations of current treatments and new drugs with improved efficacy and safety profiles are urgently needed.

- **Increased and sustainable public funding for treatment:** Treatment of children and adults alike has recently been shown beneficial. It is now time to scale up treatment programmes.