CONDITION

Chagas disease

Learn how Chagas disease spreads, its early and long-term symptoms, how it is diagnosed, and when treatment or heart and digestive monitoring may be needed.

WHAT IT IS
Parasitic infection caused by T. cruzi

BODY SYSTEM
Heart and digestive system

MAIN SYMPTOMS
Fever, tiredness, palpitations, trouble swallowing

WHAT CAUSES IT
Infection with T. cruzi

HOW IT IS DIAGNOSED
Blood microscopy or PCR acutely, two antibody tests chronically

MAIN TREATMENT
Antiparasitic treatment

CAN IT BE CURED?
Sometimes - antiparasitics work best when early

IS IT AN EMERGENCY?
Sometimes - fainting or severe chest pain

LONG-TERM OUTLOOK
Many remain well, but some develop serious heart or digestive disease

Overview

Brazilian trypanosomiasis is more commonly called Chagas disease or American trypanosomiasis . It is an infection caused by the parasite Trypanosoma cruzi , often shortened to T. cruzi . Although the name refers to Brazil, the infection occurs in many parts of Mexico, Central America, and South America. It is also diagnosed in other countries because of travel and migration.

The parasite is most often spread by triatomine insects, sometimes called "kissing bugs." The insect bite itself usually does not transmit the parasite. Instead, infected bug feces may enter the body through the bite, broken skin, or the eyes or mouth.

Chagas disease has an early, or acute, phase followed by a long-term, or chronic, phase. Many people have few or no early symptoms. The parasite can then remain in the body for life if it is

not treated. Some people never develop further illness, while others later develop heart or digestive problems.

The condition matters because serious complications may appear years or decades after the original infection. Early diagnosis provides an opportunity to consider antiparasitic treatment and arrange appropriate monitoring. Chagas disease is different from African trypanosomiasis, also called sleeping sickness, which is caused by other parasites and spread by tsetse flies.

Symptoms

The acute phase usually begins within weeks of infection and may last for several weeks or months. Many people have no noticeable symptoms. When symptoms occur, they are often mild and can resemble a common viral illness.

Possible acute symptoms include:

Rarely, acute infection can cause inflammation of the heart muscle, known as myocarditis, or inflammation involving the brain and its surrounding tissues.

After the acute phase, most people enter the chronic phase. During an early chronic stage, sometimes called the indeterminate form , blood tests show infection but there may be no symptoms or detectable organ damage.

If chronic disease affects the heart, symptoms may include palpitations, dizziness, fainting, chest discomfort, reduced exercise tolerance, leg swelling, or shortness of breath. These symptoms can result from abnormal heart rhythms, damage to the heart's electrical system, or weakening of the heart muscle.

Digestive disease is more common in some geographic regions. Damage to nerves in the digestive tract can enlarge the esophagus or colon. This may cause trouble swallowing, food coming back up, chest discomfort after eating, severe or long-lasting constipation, abdominal swelling, or unintended weight loss.

Seek emergency care for fainting, new severe chest pain, major difficulty breathing, or signs of stroke such as facial drooping, one-sided weakness, or sudden trouble speaking. Severe abdominal pain with marked swelling, repeated vomiting, or an inability to pass stool or gas also needs urgent assessment.

- Fever, tiredness, headache, or body aches
- Reduced appetite, nausea, vomiting, or diarrhea
- Swollen lymph nodes

- An enlarged liver or spleen
- Swelling or a sore where the parasite entered the skin, called a chagoma
- Painless swelling around one eye, called Romaña sign, if contaminated material entered near the eye

Causes and risk factors

Chagas disease develops when T. cruzi enters the body. The main routes of transmission are:

After feeding, a triatomine bug may leave feces near the bite. Scratching or rubbing can move the parasite into broken skin. It may also enter through the moist surfaces of the eye or mouth. Chagas disease does not spread through ordinary contact such as hugging, sharing dishes, coughing, or using the same bathroom.

Risk is higher for people who have lived in or spent extended time in areas where infected triatomine bugs are present, especially in housing with cracks in walls or roofs where the insects can hide. Risk also depends on local control programs and housing conditions, so being born in Latin America does not by itself mean that a person is infected.

Other people who may need testing include those whose biological mother had Chagas disease, people who received blood or organs in a setting without reliable screening, and people with a previous positive blood-donor screening result. Household members do not spread the infection to one another through normal contact, but relatives may share geographic or family-related exposure risks.

A person with chronic infection may develop reactivation if the immune system becomes severely weakened, such as from advanced HIV infection, certain cancer treatments, or medicines used after an organ transplant. Reactivation can involve the heart, brain, skin, or other organs and requires prompt specialist care.

- Contact with infected triatomine bug feces
- Transmission from a pregnant person to a fetus
- Eating or drinking food contaminated with the parasite
- Receiving infected blood or a transplanted organ, especially where screening is limited
- Accidental laboratory exposure

Diagnosis

Diagnosis begins with a discussion of where a person has lived or traveled, housing conditions, family history, pregnancy history, blood transfusions, organ transplants, and possible insect exposure. Symptoms alone cannot confirm Chagas disease because they overlap with many other conditions.

During acute infection, there may be enough parasites in the blood to see under a microscope. Molecular testing, such as polymerase chain reaction or PCR, may also detect parasite genetic material. These tests are especially useful for suspected acute infection, congenital infection, or reactivation.

In chronic disease, parasite levels in the blood are usually low. Diagnosis therefore depends mainly on blood tests that look for antibodies made by the immune system. No single antibody test is considered reliable enough in every situation. Health professionals generally use at least two tests based on different methods or parasite components. If the results disagree, another test may be needed.

Blood-donor screening is designed to protect the blood supply and is not, by itself, a complete clinical diagnosis. A reactive donor result should be followed by confirmatory testing and medical evaluation.

Babies born to a person with Chagas disease need specific testing and follow-up. Antibodies passed from the mother can remain in the baby's blood for a time, so clinicians may use parasite-detection tests early and antibody testing later.

People with confirmed chronic infection are usually assessed for organ involvement. Evaluation may include an electrocardiogram, or ECG, which records the heart's electrical activity. Depending on the findings, a clinician may request an echocardiogram, longer-term rhythm monitoring, chest imaging, or digestive tests.

Treatment and management

Two antiparasitic medicines are used for Chagas disease: benznidazole and nifurtimox . They work by killing or suppressing T. cruzi . Treatment is most effective during acute infection and in infants and children treated early. It is also used for congenital infection and reactivation.

For adults with chronic infection, the decision is more individualized. Age, pregnancy status, other medical conditions, possible medicine side effects, and the extent of existing heart disease all matter. Antiparasitic treatment may reduce the chance of future disease, but it does not reliably reverse heart or digestive damage that has already developed. People with advanced Chagas heart disease should discuss the expected benefits and limits of treatment with an experienced clinician.

Treatment courses last for several weeks and require follow-up. Benznidazole can cause rash, digestive symptoms, numbness or tingling, and changes in blood cell counts. Nifurtimox can cause reduced appetite, weight loss, nausea, abdominal symptoms, headache, or nervous-system effects. Not everyone develops these problems, but new symptoms should be reported promptly. Clinicians may use examinations and laboratory tests to monitor safety.

Antiparasitic treatment is generally not started during pregnancy. Someone who is pregnant, breastfeeding, or planning pregnancy should discuss the timing of testing and treatment with a clinician familiar with Chagas disease. Treatment before a future pregnancy may reduce the risk of passing the infection to a baby.

Management of chronic organ damage depends on the problem involved. Heart care may include medicines for heart failure or abnormal rhythms. Some people need a pacemaker to correct a slow rhythm or an implanted defibrillator to treat dangerous fast rhythms. Blood-thinning medicine may be considered when there is a specific risk of blood clots or stroke. Advanced heart failure may require specialist procedures or transplantation.

Digestive management can include changes in food texture, adequate fluids, treatment for constipation, or procedures to help an enlarged esophagus or colon. These measures should be tailored to test results and symptom severity rather than attempted as a substitute for evaluation.

People who may receive immune-suppressing treatment should tell their care team about confirmed or possible Chagas disease. Testing before transplantation, chemotherapy, or strong immune-suppressing therapy can help clinicians plan monitoring for reactivation.

Complications

Chronic Chagas heart disease can damage the heart muscle and its electrical pathways. Possible complications include slow or fast heart rhythms, heart failure, blood clots, stroke, and sudden cardiac arrest. A person can have electrical changes before noticing symptoms, which is why routine heart assessment is important after diagnosis.

Digestive complications may include major enlargement of the esophagus, called megaesophagus, or colon, called megacolon. These conditions can interfere with swallowing, nutrition, bowel movements, and normal movement of food through the digestive tract.

Reactivation in a person with a weakened immune system can progress quickly and may cause severe inflammation of the heart or brain. Congenital infection may affect an infant even when the mother feels well, making testing during pregnancy or after birth important when there is a known risk.

Follow up

Routine follow-up is important even when a person feels well. A clinician may repeat a symptom review, physical examination, and ECG at intervals based on the person's age, test results, and overall health. New palpitations, fainting, reduced exercise tolerance, swallowing trouble, or persistent constipation may lead to additional testing.

Antibody tests can remain positive for years after treatment, especially in adults. A positive result soon after therapy does not necessarily mean that treatment failed. Follow-up plans differ by age and stage of infection, and there is no single test that immediately proves cure in chronic disease.

Arrange a routine appointment if you have a relevant exposure history, were born to someone with Chagas disease, received a reactive blood-donor result, or have confirmed infection but are not receiving regular monitoring. People planning pregnancy or immune-suppressing treatment should raise the issue before treatment or pregnancy when possible.

Seek prompt medical advice for new palpitations, worsening shortness of breath, swelling, trouble swallowing, unintended weight loss, or major changes in bowel habits. Call emergency services for fainting, severe chest pain, severe breathing difficulty, stroke symptoms, or a sustained rapid heartbeat accompanied by weakness or dizziness.

Sources

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