

TALKING POINTS – CHAGAS’ DISEASE – AMERICAN TRYPANOSOMIASIS

- ❑ Disease named after the Brazilian physician Carlos Chagas who described the disease in 1909.
- ❑ Chagas’ disease is a blood borne parasitic infection that is due to the protozoan flagellate – *T. cruzi*.
- ❑ *T. cruzi* is transmitted by feces from the Triatomine bug (kissing bug) that thrives in rural thatch houses.
- ❑ Disease is endemic to the Americas – Southern USA, Mexico, Central America and South America.
- ❑ World Health Organization estimates that 16-18 million people are infected with *T. cruzi*.
- ❑ Transmission of Chagas’ disease is by vector, transfusion, organ transplantation, congenital and ingestion of contaminated food.
- ❑ Disease has three phases – acute, latent and chronic phases.
- ❑ Acute phase has non-specific symptoms that last four to eight weeks. Acute characteristic signs are chagoma and Romana’s sign (palpebral edema).
- ❑ Clinical latent phase is asymptomatic with positive serology and lasts for years or decades.
- ❑ Chronic phase involves 10-30% of infected people and has megacolon, megaesophagus and cardiomegaly. Lesions can be fatal.
- ❑ Therapy is management of symptoms and parasitic drugs (nifurtimox and benznidazole) that are effective in the acute phase.
- ❑ There is no vaccine.
- ❑ Preventive measures are improved housing, tourists avoiding mud/thatched huts, mosquito nets with cloth roof to prevent the “rain” of vector feces, insecticide spraying and screening of blood donors and organ donors.
- ❑ Blood donor screening for Chagas’ disease is being implemented in the USA.

For more information about *T. cruzi* and Chagas’ disease, please visit the CDC website -

<http://www.cdc.gov/ncidod/dpd/parasites/chagasdisease/default.htm>

NCCBB IMPLEMENTS TESTING FOR CHAGAS' DISEASE

Trypanosoma cruzi – American trypanosomiasis

With increasing immigration from Latin American countries, there has been within the blood bank community a concern for Chagas' disease and its transmission by transfusion and transplantation because of potentially higher risk in blood donors from these countries. In the US and Canada, 7 transfusion-transmitted cases and 5 organ-transmitted cases have been reported since 1987. Based on limited studies, seroprevalence among US blood donors has varied by location and has varied from 1 in 5,400 to 1 in 25,000. AABB, America's Blood Centers and American Red Cross have supported the FDA in encouraging manufacturers to develop blood screening tests for Chagas' disease. On December 13, 2006, the FDA announced the licensing of the Ortho Clinical Diagnostics test for Chagas' disease. FDA approval is pending for the Chagas' test by Abbott Diagnostics.

Currently large organizations such as the American Red Cross and Blood Systems (United Blood Services and Blood Centers of the Pacific) are screening for Chagas' disease. Other centers are following suit. Northern California Community Blood Bank (**NCCBB**) implemented Chagas' testing on 2/5/2007.

The Ortho T. cruzi ELISA Test System is an immunoassay for antibodies to T. cruzi. It is to be used for screening donors of whole blood and for screening plasma and serum samples from cell, organ and tissue donors (heart-beating). It is not approved for use on specimens from cadaveric donors (non-heart-beating). This test has sensitivity of 97.7% and specificity of 100% (TRANSFUSION 2007; 47: 90-96). Potential cross reactivity can be with malaria, leishmania, syphilis and blastomycosis. The testing platform is the ELISA screening test followed by a confirmatory test for samples that test positive. A radioimmunoprecipitation assay (RIPA) is the confirmatory test and the confirmatory cycle may be 4 weeks or longer.

Chagas' disease is the protozoan parasitic infection due to T. cruzi. The parasite is endemic in the continental Americas, especially in Latin America. The agent has rarely caused natural infection in the U.S. Natural infection is transmitted by the triatomine bug (kissing or reduviid bug). In the endemic regions, the vector thrives in rural thatch houses. Other forms of transmission are congenital, blood transfusion, organ transplantation and ingestion of contaminated food. The acute phase has non-specific symptoms that may last four-eight weeks or months. Characteristic acute signs are the chagoma and Romana's sign (palpebral edema). After a long clinical latent period, there is the chronic phase with cardiomyopathy and gastrointestinal involvement (megaesophagus and/or megacolon). Therapy is management of symptoms and antiparasitic drugs that are only effective in the acute phase. Antiparasitic drugs are nifurtimox (available from CDC Drug) and benznidazole (not available in the U.S.). There are no vaccines for T. cruzi.

If you have any questions, please feel free to contact Medical Director at NCCBB (443.8004).