

Trypanosoma Brucei.

Sleeping Sickness



- ◉ There are 2 species of this parasite:
 - ◉ *Trypanosoma brucei rhodesiense* causing East African trypanosomiasis
 - ◉ *brucei gambiense* causing West African trypanosomiasis

Life Cycle

- Infected tsetse fly bites a human
- While feeding on human blood- metacyclic trypomastigotes are transmitted to the skin from the salivary glands of the fly.
- The parasites enter the blood stream of the human by entering lymphatic or blood vessels.
- The travel in body fluids eg blood, lymphatic or spinal fluid and then transform into bloodstream trypomastigotes and multiply by binary fission.
- When another tsetse fly drinks the infected blood the disease is transmitted.
- The life cycle takes 3 weeks inside the fly. The blood ingested contains bloodstream trypomastigotes which transform into procyclic trypomastigotes in the fly's midgut and multiply. They then move to the salivary glands after transforming into epimastigotes. They finally transform into metacyclic trypomastigotes and multiply again by binary fission.

Host

- Humans

Transmission

- The transmission of the parasite is through the tsetse fly

Symptoms

- East African trypanosomiasis is more acute and advances faster than West African trypanosomiasis. Not many symptoms to begin with but the advance within the first few months of infection.
 1. 1-3 weeks as sore lesion can develop where the fly has bitten
 2. Weeks or months later the parasite can cause:
 - anemia
 - cardiac dysfunction
 - itching
 - fatigue
 - fever
 - headache
 - muscle or joint pain
 - skin rash
 - splenomegaly
 - swelling of the lymph nodes
 - weight loss.

Symptoms

- In the final stages- the disease reaches the brain. In some cases the CNS can become infected within the first month(the meningoencephalitic stage- inflammation of the CNS) and cause:
 - blackouts
 - coma
- confusion and abnormal behaviour
- death (within months or years)
 - insomnia (sleeping troubles)
 - personality changes
- somnolence (extreme fatigue).

Treatment

- Drug choice is based on the type of parasite and the stage of infection.
- Hospitalisation is required initially with follow ups for 2 years.
- Pentamidine isethionate and suramin are used to treat the intital stage.
- Melarsoperol is used to treat the later stage where the CNS is involved.

Prevention

- Tsetse flies are attracted to bright colours, very dark colours and moving vehicles.
- Check for tsetse flies before entering the car
- Wear long-sleeved t-shirts + trousers
- Use insect repellent
- Avoid areas of heavy infestation (endemic areas)

References

- https://upload.wikimedia.org/wikipedia/commons/thumb/3/33/TrypanosomaBrucei_ProcyclicTrypomastigote_SEM.jpg/250px-TrypanosomaBrucei_ProcyclicTrypomastigote_SEM.jpg
- <http://www.parasitesinhumans.org/trypanosoma-brucei-sleeping-sickness.html>