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Updated results on atypical human trypanosomoses caused by animal trypanosomes

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Abstract

There are only two classical human forms of trypanosomoses, they are sleeping sickness in Africa (*Trypanosoma brucei* spp.) and Chagas' disease (*T. cruzi*) mainly in South America respectively. Other trypanosomes can infect a wide range of wild and domestic animals (fish, reptile, amphibians, mammals including cattle), but they are not supposed to be infective to human beings. However, several human cases infected by animal trypanosomes have been recently reported, in particular *Trypanosoma lewisi* (a *Rattus* trypanosome usually transmitted by fleas), and *T. evansi* (found for instance in cattle, camels, and mechanically transmitted by blood sucking insects such as tabanids or stomoxes).

High density lipoprotein (HDL) in normal human serum (NHS) contains several compounds (e.g. ApoL-1) which protect us against African trypanosomes. The Indian patient infected with *T. evansi* reported in 2005 because of a genetic deletion was confirmed in the ApoL-1 gene in this patient, while another naturally *T. evansi* infected patient reported in Viet Nam in 2015 had a normal ApoL-1. The mode of transmission suspected in both cases was direct contamination via a wound while butchering raw beef. Both patients were cured successfully by using suramine, a drug for the acute form of sleeping sickness.

Human infected with *T. lewisi* was mainly reported in babies. Although most of cases were transient infections, other required treatment or died. A recent case died from *T. lewisi* infection in India in 2015. It has been demonstrated that this parasite is resistant to NHS. Thus, *T. lewisi* is potentially a human pathogen or zoonotic pathogen. We present the new cases either described or suspected since the 2012, and previous cases as well (including infection by *T. b. brucei, T. congolense*). The problem of diagnosis and treatment will be considered, and the potential risk of emergence of a new zoonotic disease will be discussed.