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Use of TrypTectCIATT to Determine the Effectiveness of Treatment of *Trypanosoma brucei rhodesiense* Infections in Vervet Monkeys (*Chlorocebus aethiops*) and Man

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Abstract

The vervet monkey (*Chlorocebus aethiops*) model of sleeping sickness was used to evaluate the effectiveness of TrypTectCIATT in assessing the success of trypanocidal therapy. A retrospective study was therefore conducted on sera collected from monkeys infected with *Trypanosoma brucei rhodesiense* and treated either curatively with melarsoprol or sub-curatively with diminazene aceturate. In the human survey, 440 sera collected from 96 human patients were tested. These patients were treated with either suramin or melarsoprol depending on the stage of the disease. An extra 56 parasitologically positive pre-treatment samples were also tested to aid in determination of the test sensitivity. Results indicated that between 21–28 days post-infection, the test detected trypanosomal antigens in 84.2% (16/19) of animal samples that were parasitologically positive by the haematocrit centrifugation technique (HCT). In curatively treated animals, 77.8% (7/9) exhibited positive reaction up to 9 months post-treatment. One animal was positive for trypanosomal antigens for the entire 12 months while one was a non-reactor. From the sub-curatively treated group, 80% (8/10) were detected positive for the entire 12 months while, 2 animals were non-reactors. In the human survey, three patterns of antigen profiles were observed. In some patients, there was fluctuation of antigen levels throughout the 12 months follow-up period. In others, antigens were detected for the entire 12 months but in decreasing levels. The last group was that of patients with antigens decreasing at different rates to undetectable levels at 12 months post-treatment. The presence of trypanosome positive but antigen negative samples during the study raises a few questions with regards to the sensitivity of the test. It is however evident that the test was able to detect trypanosomal antigens in over 80% of positive monkey and human serum samples. Consequently, TrypTectCIATT may be an important additional tool in reduction of the follow-up period and determination of success of chemotherapy in sleeping sickness.

Keywords: Agglutination, sleeping sickness, *Trypanosoma brucei rhodesiense*, TrypTectCIATT, vervet monkeys