

**Roles of Parasitosis Clinical and Biochemical Parameters in Diagnosis and Monitoring *Trypanosoma Brucei Rhodesiense* Infections in Vervet Monkey (*Chlorocebus Aethiops*) Model.**

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**Abstract**

This study investigated the role of clinical symptoms, blood and cerebrospinal fluid (CSF), parasitosis, hematocrit, white blood cells (WBCs) and protein concentration in diagnosis of trypanosomiasis in Vervet Monkeys (*Chlorocebus aethiops*) infected with *Trypanosoma brucei rhodensiense* (KETRI 2537) and treated with Berenil and Melarsoprol. The pre-patent period was  $3.75 \pm 0.17$  days. At the onset of parasitaemia fever, increased respiratory and pulse rate, splenomegaly, lymphadenopathy and wasting ( $4.05 \pm 0.77\%$ ) were observed. Other classical symptoms such as raised hair coat and skin rashes, changes of eyes and teeth, stiffness of joints, muscle tremors, ataxia and abnormal posture, edema of genitalia, lethargy, somnolence, pallor of mucus membranes and change of demeanor were not observed. Arise in parasitaemia to a peak level of  $8.15 \pm 0.03$  approximately  $14.17 \pm 0.27$ -day post infection (DPI) was observed. After institution of Berenil treatment at  $31.50 \pm 0.27$  DPI, parasitaemia dropped to undetectable levels  $12.14 \pm 0.17$  days later ( $43.42 \pm 4.2$  DPI). Trypanosomes relapse in the blood occurred  $145.60 \pm 5.29$  DPT with Berenil and cleared after Melarsoprol treatment at  $171 \pm 2.77$  DPI ( $136 \pm 1.77$  day of post treatment (DPT) with Berenil). Hematocrit decreased significantly after infection and after Berenil treatment, returning to normal after Melarsoprol treatment. WBC counts increased significantly with fluctuations to  $>5$  cell/mm<sup>3</sup> by  $17.50 \pm 1.77$  DPI even after Berenil treatment dropping to levels  $<5$  cell/mm<sup>3</sup> at  $224.68 \pm 4.67$  DPI ( $86.5 \pm 2.47$  DPT with Melarsoprol). Total CSF protein concentration increased  $>25$ mg/dL at  $17.50 \pm 1.77$  DPI even after Berenil treatment reaching a peak at  $49.24 \pm 3.07$  DPI ( $17.74 \pm 3.02$  DPT with Berenil). Melarsoprol treatment led to a decrease in total CSF protein concentration though still above the pre-infection level even at the end of the study

period. Parasitosis, clinical and biochemical parameters are indicative of trypanosome infection.

**Keywords:** *Roles Parasitosis, Clinical and Biochemical Parameters, Diagnosis, Trypanosoma Brucei Rhodesiense, Infections, Vervet Monkey (ChlorocebusAethiops) Model.*