

## **Determination of Effective Praziquantel Dose in Different Mouse Strains: BALB/C and Swiss Mice in Treatment of Schistosoma Mansoni. (2012).**

Penina Njoki Muchirah; **Dorcus Yole**; Hellen Kutima; Rebecca Waihenya; Kennedy Muna Kuria and Mokuia John

Mombasa Polytechnic University College (MPUC)<sup>1</sup>; **Kenya Poly technic University College**<sup>2\*</sup>; Jomo Kenyatta University of Agriculture and Technology (JKUAT)<sup>3</sup>; Mount Kenya University(MKU)<sup>4</sup>;Kenya Methodist University<sup>5</sup>,

### **ABSTRACT**

Schistosomiasis is a parasitic disease, second to malaria, affecting human' stropics and sub-tropics. The disease condition varies in severity depending on parasite species and strain, organ system infected, geographical region, genetic constitution of the individual and nutritional status. The drug praziquantel has been the choice of drug for the treatment of schistosomiasis; however, the effective dose,450 mg/kg body weight, which is currently being used, is not able to clear the worms completely.This work sought to determine the effective dose of praziquantel in different mouse strains of which the results can be applied in human treatment.Experimental groups comprising of twelve mice and eighteen for theinfected control groups were designed for both BALB/c and Swiss mice.At four weeks post infection, mice were treated with varying dosages of praziquantel namely PZQ1350, PZQ900, PZQ450 mg/kg body weight. Atweek 6, all mice were perfused to recover adult worms. Gross pathology and histopathology of the liver tissue were examined. Serum samples were collected to determine immunological responses in all the groups at week 4 and 6. Schistosomule soluble protein (SSP) and schistosomule warm antigen preparation (SWAP) specific antibody ELISA were done. Results indicated that in the experimental groups PZQ1350 mg/kg body weight had few numbers of worms recovered in BALB/c and Swiss mice, that is,30.30 and 34.08%,respectively,and a high worm reduction, that is,69.70 and 65.92% respectively. TheSSP and SWAP specific IgG responses were high due to synergistic effect between the drug and immune responses.Granuloma formation was greatly reduced in PZQ 1350mg/kg body weight group in comparison to other treatments. The findingsof this studyimply that the higher the dosage of praziquantel,the more the protection against Schistosoma mansoni infection,sincePZQ1350 indicated better responses in worm recovery, worm reduction, immunological response and pathology compared to other dosages. These results may be incorporated into the design of a more effective dose; however, the toxicity of the highdose should be investigated. The findings also indicate that Swiss mouse was a better permissive host than BALB/c, as it allowed more parasites to mature instead of destroying them. Hence,it is a better model in schistosomiasis experimental studies. Keywords: Schistosomiasis, praziquantel, mice, pathology

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