EFFICACY OF IVERMECTIN AND ALBENDAZOLE IN THE TREATMENT OF OXYURIOSIS IN LABORATORY RATS AND MICE

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Infection with pinworms (Oxyuriasis) is one of the common helminthic infections affecting laboratory rats and mice. Pinworms affecting rats and mice are *Syphacia obvelata*, *Syphacia muris* and *Aspiculuris tetragona*. Infection with pinworms has untoward effects on growth, behaviour, intestinal physiology and immunology of laboratory rodents. Heavy infections cause rectal prolapse, catarrhal enteritis, intestinal impaction, sticky stools, intussusception, liver granuloma and perianal pruritus. Pinworm infection is a major hindrance to the use of rodents in research. Affected animals have an elevated Th2 cytokine profiles which may mislead the results of immunologic studies. The present study was undertaken to compare the efficacy of ivermectin and albendazole in effective treatment and control of pinworm infections in laboratory rats and mice.

The study was conducted at the Laboratory Animal Medicine Unit, Centre for Animal Health Studies, Tamil Nadu Veterinary and Animal Sciences University, Madhavaram Milk Colony, Chennai. All procedures were carried out with the approval of the Committee for the Purpose of Control and Supervision of Experiments on Animals (Approval No 1014/DFDB/B/2014). Rats and mice were screened for pinworm infection by the perianal tape test and those found positive for pinworm eggs were segregated into groups of five per sex, identified by the picric acid marking on the animal and kept in separate cages. Anthelmintics used were Ivermectin (Silvotin, 0.1%, Sihil Pharma @ 2.5 mg/kg) and Albendazole (Albomar, 25 mg/ml, Virbac @ 2.5 mg/kg). Control group was administered with drinking water (vehicle). Dose volume administered was 10 ml/kg body weight for all the three anthelmintics, and administered by oral gavage for 5 days to Wistar rats or in drinking water for 5 days to Wistar rats, Swiss Albino mice and Balb C mice. All medications were freshly prepared and administered immediately after preparation. Tape tests were taken one day pre-dosing and on day 1, 14 and 28 post dosing and screened for pinworm eggs. Body weight was measured before dosing and on day 1, 14 and 28 after dosing. Monitoring of cage wise daily feed intake and water consumption was done.
In male Wistar rats administered anthelmintics by oral gavage, Ivermectin group showed absence of eggs from day 1-28 post dosing indicating complete elimination of eggs. However, one animal of this group alone showed presence of eggs on day 1 post dosing but subsequently was found negative by day 14. Rats treated with Albendazole did not show presence of eggs till day 14 post dosing. However, the animals unlike Ivermectin group became susceptible to reinfection and eggs were seen 28 days post dosing. Similar effects were observed in female Wistar rats as well. Administration of both Ivermectin and Albendazole in drinking water was equally effective in male and female Wistar rats, Swiss Albino mice and Balb C mice. All treated animals were free of eggs on 1, 14 and 28 days post dosing. No significant changes were observed in feed intake, water consumption and body weight. All treatments were well tolerated and no mortality was observed in any group during and after dosing till day 28 post dosing.

Results in the present study indicate that Ivermectin and Albendazole can be effectively used to treat and eradicate pinworm infections in laboratory rats and mice through drinking water.