High Efficacy of Combined Albendazole and Ivermectin Treatment Against Gastrointestinal Nematodes in Vervet Monkeys and Baboons

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Abstract

Conventional treatment that eliminates other gastrointestinal nematodes has failed to show adequate efficacy against Trichuris trichura in non-human primates (NHPs). We investigated the efficacy of albendazole and ivermectin against natural infestation of nematodes in non human primates. 18 vervet monkeys (Chlorocebus aethiops) and 21 baboons (Papio anubis) were divided into three treatment groups comprising of 6 vervets and 7 baboons per group. Albendazole (ABZ, 7.5mg/kg) was administered orally, and ivermectin (IVM, 300μg/kg) subcutaneously, each for three consecutive days. Group I animals were treated with a combination of albendazole and ivermectin, Group II ABZ alone, while Group III animals were treated with IVM alone. Faecal samples were collected at 0, 7, 14 and 28 days post treatment (dpt) and analysed for the presence of faecal eggs using the McMaster and formol ether acetyl (FEA) methods. Faecal egg count reduction percentage (FECR (%)) and cure rate (CR (%)) i.e. percentage of faecal egg negative individuals after treatment) were used to determine the efficacy of the treatment regimens. The FEA method was found to be a more sensitive assessment method than the McMaster technique. When both methods were used the helminths observed included Trichuris trichura (100% in both NHPs) and strongyles (29.4% in vervets and 28.6% in baboons). In vervets, the FECR of T. trichura at 28 dpt was 100% (Group I), 75% (Group II) and 0% (Group III) while the CR (at the same time point) was 100% (Group I), 60% (Group II) and 0% (Group III). In baboons, the FECR% and CR% of T. trichura at 28dpt, for groups I, II, III was 100%, 100%, 0%, respectively. All the three drug regimens were curative (100%) of strongyles at 28 dpt. It is concluded that a combined ivermectin and albendazole treatment for 3 days is effective in treating T. trichura and strongyles infections in vervet monkeys and baboons. Further trials should be conducted using a bigger sample size as well as in other primates including humans.