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Efficacy of single and double doses of albendazole and mebendazole alone and in combination in the treatment of *Trichuris trichiura* in school-age children in Uganda.

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Introduction

Infections with *Trichuris trichiura* are estimated to affect approximately 1 billion people globally with high prevalences and intensities in pre-school and school-age children. Albendazole (ALB) and mebendazole (MBD) are recommended drugs for controlling this infection, but unfortunately cure and egg reduction rates are low.

ALB and MBD are both benzimidazoles, but have quite different chemical structures. Thus, a combination of ALB and MBD may act synergistically compared to the actions of the single drugs ALB and MBD in comparable doses.

A randomised clinical trial was conducted in Kabale district, south western Uganda to compare the efficacy of a single and a double dose of a combination of ALB (400 mg) and MBD (500 mg) with single and double doses of each drug given alone in the treatment of *T. trichiura*.

Methods

A total of 611 *T. trichiura* infected pupils (mean age = 10 years) from five schools in Rubahya and Kamuganguzi sub-countries were included and randomised into six treatment groups as follows:

Treatment groups:

A: ALB one dose
M: MBD one dose
AM: ALB + MBD one dose

A-A: ALB + ALB with eight hours apart
M-M: MBD + MBD with eight hours apart
AM-AM: (ALB + MBD) + (ALB + MBD) with eight hours apart

Investigation for *T. trichiura* infection using 41.7 mg Kato-Katz cellophane thick smears (four slides per sample) was performed on day 0, 7, 14, 21 and 28.

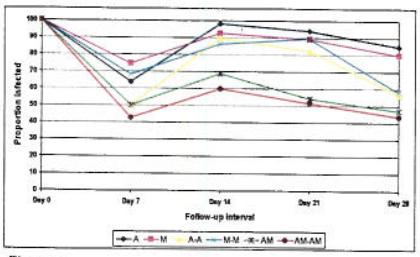

Figure 1

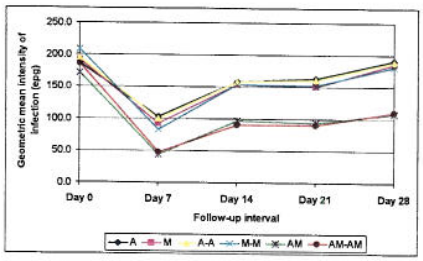

Figure 2

Results and discussion

The proportion of infected children (Figure 1) was significantly lower in the two combination groups (both single and double doses) than in all other treatment groups ($P<0.001$) on day 14 and 21 after treatment. The number of egg excreted (geometric mean intensity of positives, Figure 2) was significantly lower in the two combination groups compared to all other treatment groups ($P<0.001$) from day 7 and onwards.

In conclusion, the combination of ALB and MBD (both doses) was better than a single or double dose of each drug given alone. One reason could be that the contact time in the host intestine between drug and parasite are prolonged because MBD is the active drug, while it is the first metabolite of ALB (ALB sulphoxide) which is anthelminthically potent. The decrease (day 0 to 7) and subsequently increase (from day 7) in egg excretion have been seen in earlier studies and may be due to a temporary reduction in the metabolism of the worm.

All the tested regimens of ALB and MBD have, however, low efficacy against *T. trichiura* in Uganda.