

The Efficacy of Albendazole against Soil-Transmitted Helminths and the Impact of Mass Drug Administration of Albendazole and Ivermectin on Health Status

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Abstract : Background: The lymphatic filariasis (LF) control programme has been on-going in Ghana since 2000. This community-wide approach involves the use of ivermectin (IVM) and albendazole (ALB). Soil-transmitted helminth (STH) infections control is augmented within this programme; however, in areas where LF is not prevalent, albendazole alone is administered to school children. The purpose of this study was therefore, to determine the efficacy of albendazole against soils transmitted helminths and the impact of mass drug administration of albendazole and ivermectin on the health status of children of school going age and pregnant women. Material/Methods: This was a twelve months longitudinal study. A total of 412 subjects including school children (between the ages of 2-17 years) and pregnant women were randomly selected from four endemic communities in Kpandai district of the Northern region. Coprological assessment for parasites was based on the Kato-Katz technique in both dry and rainy seasons at baseline, 21 days and 3 months post-treatment. Single-dose albendazole treatment was administered to all patients at baseline. Preserved samples are currently under molecular studies to identify possible single nucleotide polymorphism (SNP) within the beta tubulin gene which is associated with benzimidazole resistance. Results: Of all the parasites found (hookworm, *Trichuris trichiura*, *Hymenolepis nana*, and *Taenia* sp.); hookworm was the most prevalent. In the dry season, the overall STHs prevalence at pre-treatment was 29%, while 9% and 13% prevalence was recorded at 21 days, and three months after treatment respectively. However, in the rainy season, the overall STHs prevalence was 8%, while 4% and 12% was recorded at 21 days and three months respectively after ALB treatment. In general, ALB treatment resulted in an overall hookworm egg count reduction rate of 89% in the dry season and 93% in the rainy season, while the *T. trichiura* egg count reduction rate was 100% in both seasons. Conclusions: STH infections still remains a significant public health burden in Ghana. Hookworm infection seems to respond poorly or sub-optimally to ALB, raising concerns of possible emergence of resistance which may lead to a major setback for the control and elimination of STH infections, especially hookworm infections.

Keywords : hookworm, sub-optimal response, albendazole, trichuriasis, soil-transmitted helminths

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