Efficacy of Albendazole, Albendazole-Levamisole and Mebendazole-Levamisole Against Soil-Transmitted Helminth Infection in School Children, Deli Serdang, North Sumatera

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ABSTRACT

BACKGROUND: Intestinal worm infection in particular of Soil Transmitted Helminth (STH) remained an important global public health problem, with high prevalence existed in the tropic and sub-tropic regions, including Indonesia. The prevalence was higher in rural than urban community. Helminthiasis (worm infection) is a chronic infection of nematode worm, which comprised A. Lumbricoides, T. trichiura, N. Americanus, and A. duodenale. This infection can cause physical and intellectual retardation in children. This study aimed to examine the efficacy of Albendazole, Albendazole-Levamisol, and Mebendazole-Levamisol in intestinal worm eradication.

SUBJECT AND METHODS: This was a double-blind randomized controlled trial, conducted in Deli Serdang, North Sumatera, from April to June 2015. A sample of 180 primary school children was allocated in 3 groups: (1) Albendazole 400 mg; (2) Albendazole 400 mg-Levamisol 50 mg/ 100 mg; and (3) Mebendazole 500 mg-Levamisol 50 mg/ 100 mg. The independent variable was anti-helminthiasis consisting of Albendazole 400 mg, Albendazole 400 mg-Levamisol 50 mg/ 100 mg, and Mebendazole 500 mg-Levamisol 50 mg/ 100 mg. The dependent variable was STH infection, which was examined from the stool using Kato-Katz method. The stool was collected and examined on day-7, day-14, and day-21 after treatment. The other dependent variable was side effect of the treatment.

RESULTS: The types of STH infection were as follows: 92 (51.11%) Ascariasis, 37 (20.55%) Trichuriasis, and 51 (28.33%) mixed infection. The cure rate for A. lumbricoides infection was 100% in all groups. The cure rate of T. trichiura infection was 66.7% for Albendazole, 94.7% for Albendazole-Levamisol, and 92.3% for Mebendazole-Levamisol, and this difference was statistically significant (p<0.001). The cure rate for mixed infection was 28.6% for Albendazole, 85.7% for Albendazole-Levamisol, and 66.7% for Mebendazole-Levamisol and this difference was statistically significant (p<0.001). The cure rate of mild T.trichiura infection by single-dose Albendazole-Levamisol was better than either Albendazole or Mebendazole-Levamisole (p=0.010). Nausea and diarrhea were present in all treatment groups, but the difference was not statistically significant.
CONCLUSION: Albendazole was more efficacious than either Abendazole-Levamisol or Mebendazole-Levamisole to *T. trichiura* and mixed infection. All anti-helminthic cure 100% of *A. lumbricoides*. The best treatment for mild *T. trichiura* infection is single dose Albendazole-Levamisol.

Keywords: Soil Transmitted Helminth, Albendazole, Albendazole-Levamisol, Mebendazole-Levamisol