A Preliminary Study on the Efficacy of Albendazole against *Haplorchis taichui*: an Intestinal Trematode

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Abstract

The efficacy of albendazole in treating an intestinal fluke, *Haplorchis taichui*, was studied in experimental mice. At a dose of 40 mg per mouse, a 100% cure rate was obtained with five experimentally-infected mice. In five control mice, the infection rates were 27.1, 38.5, 31.4, 17.1, and 44.2%, respectively. The result showed that albendazole could cure intestinal fluke infection. Further analysis is needed in humans with co-infection of intestinal roundworms and flukes.

Tiny-sized intestinal flukes, such as heterophyids, lecithodendriids, and plagiorchids, are quite common in Thailand. In the northeast, their prevalence was about 17.2, 34.4, and 0.7%, respectively [1]. In the north, the prevalence of *Haplorchis taichui* was 63.1% [2]. It is common that they coexist in the same endemicity with intestinal nematodes, such as hookworm, pinworm, whipworm or roundworm, even infecting the same person. At present, treatments for roundworm nematodes and flatworms are given separately; praziquantel is given for trematodes and cestodes, and albendazole or mebendazole for nematodes. A person with mixed nematode and trematode infections will receive two treatments. Thus it was interesting to know whether albendazole is effective against intestinal trematodes. If it is, then only one drug can be used for two types of worms that present in the same subject.

Ten two-month-old laboratory-bred and parasite-free mice, were infected with 70 metacercariae each by stomach tube. The metacercariae were dissected from wild-caught fish, *Puntius orphoides*, purchased from Nan Province. Five days after infection, albendazole syrup was fed to five infected mice (about 110 mg body weight); each mouse was given 1 ml or 40 mg of syrup in two divided doses, three hours between doses. Three days after treatment, all ten mice, five treated and five untreated, were autopsied and the small intestines of the mice were searched for worms.

The worms were found in all five untreated control mice, at 19, 27, 22, 12 and 31 worms or 27.1, 38.5, 31.4, 17.1 and 44.2%, respectively, with an average of 31.7%. No worm was found in the five treated mice, indicating that albendazole had a 100% cure rate on tiny-sized intestinal flukes in mice. All adult flukes recovered from the control mice were *Haplorchis taichui*, family Hetyerophyidae.

It is clear from this study that albendazole has an excellent effect on this intestinal trematode. This is not the first report of the effect of benzimidazole on trematodes. Multiple doses of mebendazole had been given to liver-fluke infected subjects, at 30 mg/kg for three or four weeks, archeiving a 96.3% (26/27) cure rate for opisthorchiasis in humans [3]. Albendazole 400 mg x 2 x 3 and 400 mg x 2 x 7 was given to opisthorchiasis patients, and the cure rates obtained were 12 and 33%, respectively [4]. The effectiveness of albendazole against intestinal trematodes will improve the cost effectiveness of treatment of intestinal parasitic infections in humans, as it can be used to treat both roundworms and flukes.

References

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