Reflection and Reaction

Sunish and colleagues\(^6\) discussed advances in the treatment of lymphatic filariasis, particularly the effectiveness of single-dose diethylcarbamazine in reducing microfilaraemia, and its enhanced effectiveness when co-administered with a single dose of albendazole. WHO currently recommends that in large-scale control and elimination programmes, albendazole should be administered in a single-dose regimen, in conjunction with either diethylcarbamazine or ivermectin.\(^2\)

Whether albendazole enhances treatment with diethylcarbamazine in mass drug administration for lymphatic filariasis elimination is a question debated around the world, especially in India, which alone contributes to about 38% of the global burden of the disease.\(^4\) India is the single largest country under the lymphatic filariasis elimination programme that was hesitating until recently to use the two-drug regimen over its entire endemic region because of the lack of evidence regarding albendazole’s beneficial effects. A common observation in most of the recent studies is that there is a substantial reduction in the microfilariae prevalence and intensity following mass drug administration (three to five rounds) with diethylcarbamazine alone, and also a substantial reduction with diethylcarbamazine plus albendazole.\(^3,4\)

The rate of reduction is more pronounced in the two-drug regimen compared with the single-drug regimen; however, the difference between the two arms is not always significant. This reduction is more visible in children and young adults.

In most lymphatic filariasis endemic regions, children and young adults are more infective (microfilaraemic), and also vulnerable to intestinal geohelminth/soil-transmitted helminth infections (mainly roundworm [Ascaris lumbricoides], whipworm [Trichuris trichiura], and hookworm [Ancylostoma duodenale]).\(^5\) The gastrointestinal tract of a child living in poverty in a developing country is likely to be parasitised with at least one—and in many cases all three—soil-transmitted helminths, with resultant impairments in physical, intellectual, and cognitive development. Some of the major ailments caused by soil-transmitted helminths include intestinal discomfort and malabsorption.\(^1\) The potential benefits of albendazole in treatment against the geohelminths have been well documented.\(^5,7\)

Bethony and colleagues have expressed concern about the sustainability of periodic deworming with anthelmintics.\(^6\) Although it has not been resolved whether albendazole should be used as a microfilaricide or macrofilaricide for treating individual patients with lymphatic filarial infections,\(^3,8\) albendazole’s use as an adjunct to diethylcarbamazine for mass drug administration in the lymphatic filariasis elimination programme is likely to ensure periodical deworming. A study on deworming programmes for school children also ruled out any possible clinical allergy associated with albendazole treatment.\(^9\)

Although diethylcarbamazine is mainly a microfilaricide drug, it also has some macrofilaricidal action.\(^2,10\) The effect of diethylcarbamazine against microfilariae depends on the host immune status and the level of absorption of the drug (from the intestine to the bloodstream).\(^9\) In cases of co-infections caused by lymphatic filariasis (harbouring microfilariae) and soil-transmitted helminths, it is very likely that the absorption of diethylcarbamazine was enhanced by the
addition of albendazole, since the intestinal obstruction was cleared simultaneously. A greater reduction of microfilariae prevalence, intensity, and antigenaemia was reported in children and young adults following the two-drug regimen, and this might be caused by a higher proportion of co-infection in this group. Similar findings from different geographical areas could add strength to this view.

At present, the drug(s) are given to the individuals and it is their option to consume the drug(s) any time after taking food. In the two-drug mass drug administration strategy, it might be ideal to advocate that the individuals are asked to take albendazole on the first day (as it takes a day or two for the worms to clear), and diethylcarbamazine on the subsequent day. This strategy would facilitate better absorption of diethylcarbamazine and thereby ensure the enhanced effect of mass drug administration.

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