

New opportunities for the control of fascioliasis

L. Savioli,¹ L. Chitsulo,¹ & A. Montresor¹

Fascioliasis, a zoonotic disease of domestic herbivorous animals such as sheep, cattle and goats, which are the definitive hosts, is caused by infection with the liver fluke, *Fasciola hepatica*. Humans become infected by eating uncooked, and usually unwashed, aquatic vegetables on which larval parasites are encysted.

Although animals can support enormous worm burdens without developing serious disease, *Fasciola* spp. can cause severe, even fatal disease in humans. In the past, fascioliasis was limited to populations within well-defined watershed boundaries; however, recent environmental changes and modifications in human behaviour are defining new geographical limits and increasing the populations at risk.

Treatment of human fascioliasis has not always been optimal. Praziquantel, the drug of choice for treating all human foodborne trematode infections, is ineffective against fascioliasis. Bithionol, although not fully satisfactory, has long been recommended as a treatment for fascioliasis, at a dosage of 30 mg/kg body weight per day for 5 days. The drug of choice to treat human cases of fascioliasis is now triclabendazole, a benzimidazole compound, which has been used in veterinary practice since 1983 to treat the disease. The first instance of its use in humans was during the 1989 epidemic of fascioliasis in northern Islamic Republic of Iran near the Caspian Sea, when the health authorities approved the use of veterinary formulations to address the problem. Triclabendazole, which is given as a single dose of 10 mg/kg body weight, is available as scored 250-mg tablets, and is effective against both adult and immature flukes, which migrate through the liver parenchyma.

During the 1989 outbreak of fascioliasis, the Islamic Republic of Iran, WHO and the manufacturer of triclabendazole, Ciba-Geigy, realized that it was important that a preparation specifically intended for humans be developed. Ciba-Geigy agreed to

perform all the nonclinical studies required, while WHO assumed responsibility for developing a clinical trial protocol, as well as encouraging, supporting and analysing the data from such trials. The development of triclabendazole provides an excellent example of successful collaboration between WHO and the private sector to develop and assess the efficacy of tools for the control of communicable diseases. Working in conjunction with WHO and Novartis Pharma Inc. (the successor to Ciba-Geigy), the Egyptian Ministry of Health was the first to register triclabendazole for human use, and in December 1997 the WHO Expert Committee on the Use of Essential Drugs recommended that the drug be put on the list of essential drugs. This will allow its incorporation into national drug formularies. The process of registering triclabendazole for human use is currently under way in other endemic countries.

The availability now of an effective, single-dose, safe treatment for fascioliasis using a formulation specifically designed for human use creates new opportunities to implement a strategy to control the disease in areas of high risk. It is envisioned that, in those areas where there is significant morbidity due to fascioliasis and intense transmission is taking place, control programmes will be undertaken using chemotherapy as an important operational component.

Priority setting for disease control at the country level is based not only on mortality and morbidity indicators, but also on the availability of effective, safe, cheap and simple tools. With the development of triclabendazole for human use, fascioliasis can now move up the list of priorities to be addressed urgently in endemic areas. WHO has spearheaded and recommended community-based chemotherapy for the control of helminthic infections in endemic communities. The control of schistosomiasis and intestinal nematodes employs single-dose chemotherapy as one of the major tools for morbidity control in endemic areas. It may be premature, however, at this stage, to propose large-scale, community-based, chemotherapy for the control of fascioliasis since epidemiological tools have not been developed to stratify endemic areas according to the prevalence and intensity of infection.

A classification of fascioliasis based on the disease's epidemiological characteristics is proposed by Mas-Coma et al. in an article published on page 340 of this issue of the *Bulletin*. In the absence of triclabendazole this classification would represent merely an academic exercise, but in our view it is the first step towards developing a comprehensive strategy for the control of fascioliasis in endemic areas. ■

¹ Planning and Technical Guidance, Communicable Diseases Prevention and Control, World Health Organization, 1211 Geneva 27, Switzerland.