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Combating onchocerciasis in Africa after 2002: the place of vector control

Since the launching of the African Programme for Onchocerciasis Control (APOC) at the end of 1995, all 30 African countries affected by endemic onchocerciasis have been involved in a merciless fight against the disease. Already, onchocerciasis is no longer a public-health problem or an obstacle to socio-economic development in the 11 countries monitored by the Onchocerciasis Control Programme in West Africa (OCP; Molyneux, 1995). This should soon be the case in the 19 APOC countries (Dadzie, 1997), as an efficient and self-sustainable system of community-directed treatment with Mectizan® (ivermectin, MSD) is established.

In West Africa and most of the APOC countries, *Simulium damnosum* s.l. is the only species responsible for transmission of *Onchocerca volvulus*. In some foci in East Africa, however, this filarial parasite can be transmitted by species of the *S. neavei* group as well as those of the *S. damnosum* complex. Whichever the *Simulium* species involved, their elimination depends on spraying insecticide on the rivers where the pre-imaginal, rheophilic stages develop (Walsh, 1985). The periodicity of such treatment varies with the life-span of the larvae targeted: generally every week for *S. damnosum* s.l. and every 2–4 weeks for *S. neavei* s.l.

Between 1974 and 1989, such vector control, carried out in seven West African countries, was the only means of combating onchocerciasis. It successfully freed many regions of the disease, by minimising transmission for a period longer than the longevity of the adult worm in man (about 14 years). Today, vector control still remains a favoured control method in the OCP extension areas (Hougard *et al.*, 1993), but it is now combined with treatment of communities with Mectizan, the distribution of which became widespread as early as the beginning of 1990. For the remaining OCP countries and for the A countries, chemotherapy with Mectiza now the main tool used against onchocerc It is used both to treat and prevent the cli manifestations of the disease, particu onchocercal blindness and skin le (Chippaux *et al.*, 1995).

If all goes to plan, 31 December 2002 be a landmark date in the history of bla control in Africa. This is the day set phasing out all OCP activities. In fact, current, combined strategy of chemothe and vector control should help to clear al all the basins treated by the OCP before deadline. In addition, most of the ve elimination projects necessary in APOC c tries have already been identified. T should start before the end of this century most of them are likely to be completec 2002. Few campaigns against the vector *O. volvulus* are therefore likely to be con ted in Africa beyond 2002. Feasibility stu for new vector-elimination projects in AF countries, which may be implemented a 2002, have yielded convincing results (AF funding by the donor community should c tinue until 2007). However, sustainable el ination of the vector (the APOC strategy) i only be possible in those rare hydrolog basins where blackfly immigration is possible or likely. Interruption of the tra mission of the parasite by vector control many years (the OCP strategy) is now c sidered to be a too heavy financial investm both by the donors and the countries c cerned the estimated cost of treating the 000 km of rivers in the framework of OCP's operations in 1996 amounted to U.S 650 000, just for insecticides and flight-hou The development of the APOC, a program essentially based on sustainable, communi based distribution of Mectizan, is a cl demonstration that affected countries

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longer wish to become involved in long-term, vertical programmes of the OCP type, no matter how successful such programmes might be.

The only vector-control operations likely to survive after 2002 will be those needed for 'mopping up' in areas previously covered by OCP or/and APOC operations. In some basins in the OCP area, such as the Dienkoa basin in Burkina Faso, control of transmission was delayed (Hougard *et al.*, 1997) and insecticide spraying may have to be continued for some months or even 2–3 years after 2002, until epidemiological results are totally satisfactory. This should not be a major problem in Dienkoa, as the aim there will be to continue the low-cost, land-based treatment which is already managed by local health services. It may be more of a problem in the tributaries of the Oti river in northern Togo, as all the human, material and financial resources needed would have to be found, larviciding could not be carried out from the ground, and the amounts of insecticides to be sprayed would have to be fairly large because of the hydrological pattern of the local rivers.

To conclude, whatever the number and significance of the larviciding ope conducted after 2002, they will play significant role in onchocerciasis contro pared with that of chemotherapy. Mect likely to be the main control agent but microfilaricidal drugs, or even a r filaricidal drug, may be in routine use by Control of blackflies to limit their biting than disease, although not to be encou may increase in significance, especially OCP area. As larviciding by the OCP there will be a surge in the number of flies and in the number of bites in com ties which have become unaccustomed t a nuisance.

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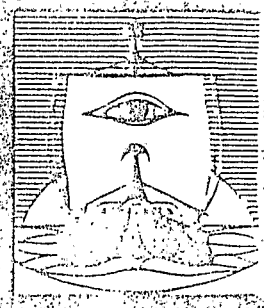

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