

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 Mectizan is now the main tool used against onchocerciasis. It is used both to treat and prevent the clinical manifestations of the disease, particularly onchocercal blindness and skin lesions (Chippaux *et al.*, 1995).

If all goes to plan, 31 December 2002 will be a landmark date in the history of blackfly control in Africa. This is the day set for phasing out all OCP activities. In fact, the current, combined strategy of chemotherapy and vector control should help to clear all the basins treated by the OCP before the deadline. In addition, most of the vector elimination projects necessary in APOC countries have already been identified. They should start before the end of this century; most of them are likely to be completed by 2002. Few campaigns against the vector *O. volvulus* are therefore likely to be conducted in Africa beyond 2002. Feasibility studies for new vector-elimination projects in APOC countries, which may be implemented after 2002, have yielded convincing results (APOC funding by the donor community should continue until 2007). However, sustainable elimination of the vector (the APOC strategy) will only be possible in those rare hydrological basins where blackfly immigration is not possible or likely. Interruption of the transmission of the parasite by vector control for many years (the OCP strategy) is now considered to be a too heavy financial investment both by the donors and the countries concerned. The estimated cost of treating the 1000 km of rivers in the framework of the OCP's operations in 1996 amounted to U.S. \$650 000, just for insecticides and flight-houses. The development of the APOC, a program essentially based on sustainable, community-based distribution of Mectizan, is a clear demonstration that affected countries

0003-4983/98/030S165-02 \$9.00
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Fonds Documentaire ORSTOM
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<PM88>

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 operations conducted after 2002, they will play a significant role in onchocerciasis control, compared with that of chemotherapy. Mectizan is likely to be the main control agent but microfilaricidal drugs, or even a microfilaricidal drug, may be in routine use by the Control of blackflies to limit their biting rather than disease, although not to be encouraged may increase in significance, especially in the OCP area. As larviciding by the OCP continues, there will be a surge in the number of flies and in the number of bites in communities which have become unaccustomed to a nuisance.

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Received 15 September 1997,

Accepted 17 September 1997

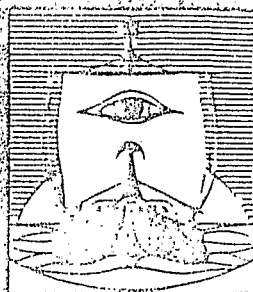
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REFERENCES

- CHIPPAUX, J.-P., BOUSSINESQ, M. & PROD'HON, J. (1995). *Cahiers Santé*, 5, 149–158.
- DADZIE, K. Y. (1997). *Africa Health*, March, 13–15.
- HOUGARD, J.-M., POUDIOUGO, P., GUILLET, P., BACK, C., AKPOBOUA, L. K. B. & QUILLÉVÉRÉ, D. (1997). *Annals of Tropical Medicine and Parasitology*, 87, 435–442.
- HOUGARD, J.-M., YAMÉOGO, L., SÉKÉTÉLI, A., BOATIN, B. & DADZIE, K. Y. (1997). *Parasitology Today*, 11, 425–431.
- MOLYNEUX, D. H. (1995). *Parasitology Today*, 11, 399–402.
- WALSH, J. F. (1985). *Bulletin of Entomological Research*, 75, 549–594.

VOLUME 92 SUPPLEMENT 1 APRIL 1998

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ANNALS OF TROPICAL MEDICINE & PARASITOLOGY

**Mectizan and Onchocerciasis: a Decade of Accomplishment and Prospects
for the Future, the Evolution of a Drug into a Development Concept**

Published for the **Liverpool School of Tropical Medicine**

ISSN 0003-4983



PM 88
13 MAR 1998

ANNALS OF TROPICAL MEDICINE & PARASITOLOGY

April 1998

Volume 92, Supplement 1

Mectizan and Onchocerciasis: a Decade of Accomplishment and Prospects for the Future; the Evolution of a Drug into a Development Concept

DEDICATION—ROBERT L. KAISER

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