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Update

## GLOBAL OPHTHALMOLOGY

# CURBING DISEASE

Moving from control to elimination in Africa

by Dermot McGrath in Berlin

**W**ith onchocerciasis on track for elimination in the Americas in the next couple of years, there are cautious grounds for optimism that the same results can eventually be obtained in Africa where the disease is most prevalent and the need is greatest, according to Adenike Abiose FRCOphth.

“Approximately 17.7 million people worldwide are infected with river blindness and more than 99 per cent of those infected live in Africa. Yet while the challenges are immense, we have seen in recent years a definite paradigm shift from controlling the disease to a situation where we can hope to eliminate it completely in certain countries,” she told delegates attending the World Ophthalmology Congress (WOC).

Dr Abiose, medical director of Sightcare International in Ibadan, Nigeria, noted that large-scale control of onchocerciasis commenced over three decades ago, initially through the Onchocerciasis Control Programme (OCP) in West Africa and more recently the African Programme for Onchocerciasis Control (APOC).

The goals of OCP were to eliminate onchocerciasis as a public health problem and to mitigate its negative impact on the social and economic development of affected regions, said Dr Abiose. Using vector control and ivermectin (Mectizan) administration, the programme succeeded in preventing infection and eye lesions in an estimated 40 million people and averted an estimated 600,000 cases of blindness.

With APOC, the strategic objective has been to protect the remaining 120 million people at risk of the disease in Africa through the establishment of community-directed treatment with ivermectin.

“One of the key lessons is that to eliminate onchocerciasis we need to continue treatment for a sufficiently long period of time. There is a need for intervention with adequate geographic and therapeutic ivermectin treatment coverage over a sufficient time period. We also know the importance of monitoring epidemiological and entomological data in sentinel areas to give us better predictive models for the disease. And we also need a sufficiently long post-treatment surveillance period – at least three years according to WHO guidelines – in order to declare elimination of the disease,” she said.

To review progress in Africa and to discuss future strategies, two meetings were held in Burkina Faso in 2009 and 2010. “The conclusions of those meetings were that onchocerciasis can be eliminated at least from parts of Africa and the ‘infection map’ successfully shrunk, particularly in West and East Africa,” she said.

Nevertheless, there are several issues to be addressed in moving from control to elimination in Africa, cautioned Dr Abiose. “We need to obtain more empirical evidence of the feasibility of elimination and required interventions. We also need to develop clear guidelines for countries on what has to be done to achieve elimination and prove the absence of transmission.”

In a separate presentation, Frank Richards MD, director of the River Blindness Programme of the Carter Centre said that patience and perseverance were needed to eliminate onchocerciasis.

To successfully eliminate onchocerciasis, Dr Richards highlighted three challenges: first, finding drugs that kill the adult worms, second, designing better mathematical models to predict the course of infection, and finally, developing better diagnostics.

While ivermectin has been successful at killing the microfilariae and disrupting transmission of the disease, it does not actually kill the adult worms. Efforts to develop a macrofilaricide drug (one which kills the adult worms) through the WHO Macrofil project have resulted in some success, said Dr Richards.

The antibiotic doxycycline, for instance, is a potent agent against Wolbachia bacteria, which play a vital role in the fertility of the onchocerciasis parasite.

Another promising treatment is moxidectin, said Dr Richards. Since moxidectin may kill not only the microfilaria but could also sterilise or kill the adult worms, it has the potential to interrupt the disease transmission cycle within around six annual rounds of treatment. If human trials prove successful, the drug could be distributed through the community-directed mechanisms set up in collaboration among APOC, African control programmes, and NGOs for the distribution of ivermectin.

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