Malaria epidemics: do we have to worry about them?

In Africa, the estimated population at risk of malaria epidemics ranges from 52 to 144 million, according to methodologies used. Populations affected by epidemics live in the highlands – or arid and semi-arid areas. Here, unusual rainfall and/or higher temperatures might play a strong role in triggering such epidemics, especially after an extended period of drought, thereby increasing general population vulnerability. Catastrophic epidemics have also been recorded as a result of movements of non-immune populations to endemic regions because of civil war or local conflicts. In Africa, 23 countries have epidemic-prone areas. Figure 1 shows where epidemics have been recorded during recent years. Usually regions or districts at risk are not sufficiently prepared to cope with the sudden increase of malaria transmission affecting numerous people in such a short period of time. From previous experiences and unofficial records, it is estimated that among the population at risk, 30–50% will develop the disease with a case fatality rate ranging from 1% to 5%, depending on the rapidity and the effectiveness of the response. (WHO unpublished reports).

The response

Case management

When the malaria epidemic is verified, there is consensus among experts that early management of fever cases by health workers and clinicians is the key to reducing the case fatality rate. This is the first intervention to be put in place. As part of case management in non-immune sick people, it is particularly vital to use, and quickly make available, highly efficacious and safe drugs at village level through mobile clinics. During the last Consultation meeting organised by WHO, experts recommended the use of artemisinin-based combinations (ACTs) as the gold-standard antimalarial for managing uncomplicated malaria cases during P. falciparum epidemics. If such highly efficacious antimalarial drugs are to be used largely, for example, for mass treatment of symptomatic febrile patients, not only will the burden be quickly reduced with far less severe cases, but an impact on transmission (gametocystal effect of artemisinin derivatives) might be expected as well. Properly managing patients with severe malaria during epidemics is also a critical issue, e.g. due to the high workload of health workers and limited equipment available in healthcare referral facilities. Clinicians know very well how to use quinine salts with reasonable success. However, during epidemics it is far more problematic to use a complicated dosing regimen of intravenous (IV) quinine, and the accompanying need to monitor in an intensive care unit both the cardiac function and glucose levels, etc. This is why experts recommend intramuscular (IM) artemether (which is easier to use than quinine salts but more expensive), as the drug of choice for severe malaria in most epidemic situations. During the preparedness process, emergency stocks of ACTs and artemether have to be quantified and maintained in well-managed stocks along with other emergency products, bearing in mind that ACTs have a 2-year shelf-life.

Vector control

While the first priority in the acute stage of a malaria epidemic is the prompt and effective diagnosis and treatment of people with the disease, a well-planned and prompt vector control can significantly contribute to reduce the risk of infection, thereby saving lives. For such more complex measures to be deployed on a timely basis, there is a need to ensure adequate ground preparation well in advance. This is why there is an increased interest to better predict epidemics through the set-up of functioning malaria early-warning systems. Such systems, coupled with early detection methods, have demonstrated their usefulness in predicting and preventing epidemics in semi-arid/arid regions of Southern Africa.

References