

Editorial: Should artemisinin-based combination treatment be used in the home-based management of malaria?

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keywords falciparum malaria, self-treatment, artemisinin combination drugs, Africa

Most cases of uncomplicated malaria are managed outside the formal health sector (Mwenesi *et al.* 1995) with drugs bought from shops or kiosks (Snow *et al.* 1992). This is especially true in poor, low-literacy populations with inadequate access to health services (Mwenesi *et al.* 1995). The practice of self-medication can be an advantage as a shorter delay between onset of disease and effective treatment has been linked to a lower risk of death (D'Alessandro *et al.* 1997). A study in Ethiopia reported a 40% reduction in under-5 mortality when providing, to mothers, simple training and antimalarial drugs for the treatment at home of their children (Kidane & Morrow 2000). But the intervention was implemented in an area where a community-based primary health care programme had been operating the health system for over 20 years and the community health workers distributing the drugs had been frequently supervised. Therefore, these results should be interpreted with caution when considering elsewhere the implementation of a similar strategy.

The African leaders at the Abuja Summit on Roll Back Malaria (RBM) held in April 2000 endorsed the laudable goal of having, by 2005, at least 60% of African malaria patients on prompt access to affordable and appropriate treatment within 24 h of the onset of symptoms. RBM has ever since promoted home-based management of malaria (HBM) as 'a simple and effective intervention that puts malaria drugs into the hands of mothers and community based caregivers'. In Uganda HBM has been implemented in 2002 in 30 of 56 districts and it is based on the distribution of a pre-packaged combination of chloroquine (CQ) and sulfadoxine-pyrimethamine (SP) (called 'HOM-APAK') by community-appointed drug distributors. However, following high drug resistance to CQ and SP, Uganda recently opted for artemether-lumefantrine (AL) as the first line drug for uncomplicated malaria (Kiwawulo 2004). This opens the discussion on whether this (or any other) artemisinin-based combination treatment (ACT) should be made available as HBM. A few points should be considered:

- ACTs are much more expensive than CQ or SP, the drugs that have so far been used by many malaria-

endemic countries as first line treatment for uncomplicated malaria (Talisuna *et al.* 2004). In countries where the health budget is extremely limited, the indiscriminate distribution of ACTs might disproportionately increase the expenses for malaria and disadvantage the implementation of other interventions against malaria itself or other diseases.

- Malaria is a difficult disease to diagnose by clinical examination only. It is estimated that clinical diagnosis by health professionals overestimates malaria (number of cases with negative microscopy over the number of malaria clinical diagnosis) by an average of 61%, ranging between 28% and 96% (Amexo *et al.* 2004). If health professionals have such a high rate of errors, can we really expect that mothers or community-based drug distributors will perform better? As long as better and/or simpler diagnostic methods than microscopy are not available and if ACTs are introduced as HBM, a large proportion of treatments will be given to patients who do not need them.
- Parasite resistance can occur for any antimalarial drug and drug selection pressure is a critical and essential prerequisite for the development of resistance (Talisuna *et al.* 2004). Loss of efficacy could easily occur in settings where ACT use cannot be fully disciplined, and other measures aimed at simultaneously diminishing the risk of infection, such as insecticide-treated bed nets, are insufficient (Duong *et al.* 2004).
- As the key ingredient of the artemisinin-based combinations is extracted from plants, a shortage of supply related to the huge expected increases in demand is feared as several African countries have opted for ACT as first-line treatment. Organizations such as MSF have warned donors and producers about the risk of a major crisis of ACT supply (MSF 2004).

In conclusion, considering these arguments, the use of ACT under the HBM approach should be carefully reconsidered because the potential benefits might be outweighed by the negative consequences. This does not mean that ACT can never be used as HBM, only that a

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careful consideration of the pros and cons should precede their possible deployment, with special attention for the diagnostic challenge (MSF 2004). Carefully conducted pilot studies focussing on the effectiveness of ACT under the HBM scheme and related operational questions are urgently needed so that decisions based on firm evidence can be taken. In the meantime, no ACT should be used on clinical presumption outside health facilities.

References

- Amexo M, Tolhurst R, Burnish G & Bates I (2004) Malaria misdiagnosis: effects on the poor and vulnerable. *Lancet* **364**, 1896–1898.
- D'Alessandro U, Langerock P, Bennett S *et al.* (1997) The Gambian National Impregnated Bednet programme: evaluation of effectiveness by means of case-control studies. *Transactions of the Royal Society of Hygiene and Tropical Medicine* **91**, 638–642.
- Duong S, Lim P, Fandeur T, Tsuyuoka R & Wongsrichanalai C (2004) Importance of protection of anti-malarial combination therapies. *Lancet* **364**, 1754–1755.
- Kidane G & Morrow RH (2000) Teaching mothers to provide home treatment of malaria in Tigray, Ethiopia: a randomised trial. *Lancet* **356**, 550–55.
- Kiwawulo C (2004) *Government Gets New Drug (New vision)*. <http://www.Newvision.co.ug/D/8/13/367612> (Accessed on June 6, 2004).
- MSF (2004) <http://www.accessmed-msf.org/prod/publications.asp> (Accessed on November 29, 2004).
- Mwenesi H, Harpham T & Snow RW (1995) Child malaria treatment practices among mothers in Kenya. *Social Science and Medicine* **40**, 1271–1277.
- Snow RW, Peshu N, Forster D, Mwenesi H & Marsh K (1992) The role of shops in the treatment and prevention of childhood malaria on the coast of Kenya. *Transactions of the Royal Society of Hygiene and Tropical Medicine* **86**, 237–239.
- Talisuna AO, Bloland P & D'Alessandro U (2004) History, dynamics and public health importance of malaria parasite resistance. *Clinical Microbiology Reviews* **17**, 235–254.

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