

Rectal artemisinin rapidly eliminate malarial parasites

Artemisinin-based suppositories can help ‘buy time’ for malaria patients who face a delay in accessing effective, injectable antimalarials, according to research published in the online open access journal *BMC Infectious Diseases*.

Plasmodium falciparum malaria can progress to severe disease and death in a number of hours, so prompt treatment is crucial. As such, rectal artemisinins can be used as emergency treatment, particularly in rural areas with limited access to injectable antimalarial therapy and suitably trained staff.

Derived from sweet wormwood, artemisinin has been used in traditional Chinese medicine for thousands of years. In the 1990s, researchers recognised its antimalarial activity and since then a number of safe and effective artemisinin derivatives have been developed. These drugs, given by mouth, as a rectal suppository or injected into a vein or muscle have been shown to rapidly reduce heavy parasite infection. Oral artemisinin-based combination treatments now form the basis of antimalarial treatment policies in most malaria endemic countries.

Suppositories are easy to administer and the World Health Organization Malaria Treatment Guidelines currently recommends rectal artemisinins as a pre-referral treatment for severe malaria. However, more information is needed about the comparative efficacy of the different artemisinin derivatives. Researchers pooled the individual patient data of over 1000 patients from 15 clinical trials of rectal artemisinins – artemisinin, artesunate and artemether – to compare the efficacy of these drugs with each other and conventional injectable antimalarials such as quinine.

In the 24 hours after treatment, rectal artemisinins – artemisinin, artesunate, and artemether - cleared malarial parasites in the blood more rapidly than quinine injection. A higher single dose of rectal artesunate to initiate treatment was five times more likely to reduce the number of parasites by over 90% than multiple lower doses of artesunate – suggesting that immediate rapid achievement of high drug concentration in severe malaria might be key to effectively killing parasites. This analysis did not look at whether the early use of rectal artemisinins saves lives, but it is hoped that their ability to rapidly kill large numbers of parasites might make a real difference to survival.

The authors write: “Early effective treatment with artemisinin-based suppositories has potential as a lifesaving intervention, particularly at the periphery of the health-care system, where suppositories might be administered early in lieu of parenteral treatment in remote communities by relatively untrained personnel. Combined with accurate diagnosis and artemisinin-based combination therapy, rectal artemisinins have been effectively used to reduce malaria incidence and mortality in Asia, an approach which holds great promise for malaria control elsewhere.”

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