Artemisinins still our best weapon against malaria, say experts

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Credit: CDC

The powerful medicines known as artemisinins have plenty of mileage in them in the global fight against malaria, and concern about partial resistance has been overstated.

That's the message in a piece published today by scientists and doctors to coincide with World Malaria Day.

Professor Sanjeev Krishna has collaborated with Chinese scientist and Nobel Laureate Tu Youyou, who originally discovered artemisinin in 1977, and other colleagues in the Perspective piece for *New England Journal of Medicine*.

Artemisinin and its derivatives are known for their ability to swiftly reduce the number of parasites in the blood of patients with malaria, and have saved millions of lives worldwide. The WHO recommends artemisinin-based combination therapies, or ACTs, as the first and second line treatment for straightforward malaria as well as for chloroquine-resistant malaria.

Partial 'artemisinin resistance' has been confirmed in some countries in the Greater Mekong Subregion, including countries such as Cambodia, Myanmar, Thailand and Vietnam. Concerns about artemisinin resistance were raised by researchers working in the area and necessitated a response from the WHO last year.

In their article Professor Krishna and Tu Youyou point out that partial artemisinin resistance is a delay in the clearance of malaria parasites from the bloodstream following treatment with a combination therapy. Since the parasite resistance only affects one stage of the malaria parasite cycle in humans - the 'ring' stage – such resistance can be overcome by using the correct dosing of artesunate, for example for 7-10 days, rather than three days. If this is used artemisinins will be effective even when early parasite clearance is delayed.

The authors also note that treatment failures with ACTs can often be directly attributed to the partner drug and can be addressed by changing that partner drug. So for example, mefloquine plus artesunate can be switched to DHA with piperaquine if the former is failing.

Finally, say the authors, a next generation antimalarial that compares

favourably to artemisinins in potency, safety and risk of resistance is unlikely to emerge very soon.

Professor Krishna said: "It remains entirely possible to rely on artemisinin and its partner drugs to eliminate malaria in the Greater Mekong Subregion. We see nothing to prevent simple adjustments to existing regimens, including intelligent use of combinations of drugs, from maximising the potential of our strongest weapon against malaria; and we believe it is urgent for these actions to be implemented before any new complications emerge."

You can read the full Perspective, A Temporizing Solution to "Artemisinin Resistance", in the *New England Journal of Medicine*.

More information: Jigang Wang et al. A Temporizing Solution to "Artemisinin Resistance", *New England Journal of Medicine* (2019). DOI: 10.1056/NEJMp1901233

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