More clarity about the role of mosquito repellent against malaria

The malaria mosquito is getting used to insecticides and therefore increasingly bites during the day and outside the home

30-09-16 - Nico Van Aerde

Dit is de omschrijving

The malaria mosquito is getting used to insecticides and therefore increasingly bites during the day and outside the home. This means that more needs to be done in addition to the use of mosquito nets in order to further reduce the incidence of malaria. The parasitic disease still claims more than half a million victims every year. Scientists at the Antwerp Institute of Tropical Medicine (ITM) and the Cambodian National Malaria Centre have studied whether the wide-spread use of mosquito repellent at community level (community protection) can help to beat malaria. In their publication in the October issue of the leading journal The Lancet Infectious Diseases, the scientists say that human behaviour forms the greatest obstacle to successful implementation of this strategy.

The research group, led by Prof. Marc Coosemans of ITM, concluded that the use of topical repellents (sprays and lotions) at a community level does not sufficiently reduce the transmission of the malaria parasite to eradicate the disease. Until now, only the individual effect of these products was known.

In 2013, the Bill & Melinda Gates Foundation awarded three million dollars to Prof. Coosemansâ€™ team, to study whether community protection against malaria could contribute to making Cambodia malaria-free by 2025. Thanks to years of cooperation between ITM and the Cambodian National Malaria Centre, the number of cases of malaria had already been reduced drastically over the last few decades.

â€œClassic strategies, such as the use of insecticide-impregnated mosquito nets, played an important role,â€ according to Prof. Marc Coosemans. â€œHowever, the malaria mosquito adapts to the insecticides and we are now seeing that the disease is partly transmitted outside the hours of sleep and outside the home. Thatâ€™s where long sleeves and repellents come into play.â€

The randomised clinical study took place in the Cambodian province of Ratanakiri, with 117 villages randomly assigned to either the intervention group (that received mosquito repellents and insecticide treated nets) or the control group (that received only insecticide treated nets). A total of approximately 49,000 people took part in the study between 2013 and 2015. With regular screening, the scientists saw no difference in the number of cases of malaria between the intervention and control villages.

In addition to the clinical and biomedical scientists, there were also anthropologists who studied the impact of human behaviour. By means of observational studies, they were able to demonstrate that only 8% of the participants regularly used the free mosquito repellent product, although 70% of participants indicated that they used the product on a daily basis.

In doing so, the ITM study is the first to provide robust evidence that the supply of effective personal protection materials, such as mosquito repellent, does not equate to a further decrease in the number of malaria cases.

â€œThe required change in behaviour forms an obstacle to the inclusion of mosquito repellents in elimination programmes. Therefore, we must urgently invest in innovative strategies against the malaria mosquito, although the lessons learned from our study could also be useful in the battle against yellow fever, Dengue and Zika where similar problems occur,â€ according to Coosemans.