

Drug-resistant malaria strain contained in Asia: scientists

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A parasite resistant to the top anti-malaria drug is confined to Southeast Asia and has not yet spread to sub-Saharan Africa as feared, said researchers Wednesday.

Scientists confirmed the containment by conducting the first global study that maps resistance to "artemisinin," currently the leading anti-malaria drug.

An international consortium supported by the World Health Organization conducted the research in 59 endemic countries.

The mapping system allows scientists to monitor the spread of the resistant parasite—*plasmodium falciparum*—in near real-time, allowing them to quickly assess whether or not using the artemisinin drug will be effective for treatment in certain areas, one of the study's key authors, Didier Menard, told AFP.

"Until now scientists have not had the tools to be properly informed about the nature of resistance to anti-malarial drugs in key affected regions such as sub-Saharan Africa," said Menard, a researcher of the Pasteur Institute in Cambodia.

The emergence of malaria strains resistant to artemisinin derivatives—first detected in Cambodia in 2008—has seriously undermined the global fight against the deadly virus.

Menard added that the mapping project marks a "public health breakthrough so badly needed in the fight against malaria," Menard added.

The mosquito-transmitted virus infected 214 million people in 2015, killing 438,000, particularly young children in sub-Saharan Africa.

Known as the KARMA study, the research stemmed from the 2014 discovery at Cambodia's Pasteur Institute of the K13 gene, whose presence can predict whether a parasite will have artemisinin resistance.

Using that information researchers studied the gene's diversity on more than 14,000 infected blood samples: 72 percent came from Africa, 19 percent from Asia, 8 percent Latin America, and 1 percent Oceania.

Scientists collected all of the samples after 2012, allowing researchers to piece together the most current understanding of the situation.

Keeping a step ahead of deadly parasite

The study is particularly significant to researchers because it was also in Southeast Asia that parasites resistant to chloroquine—the first medication used to fight malaria—were first detected in the late 1960s.

Scientists did not detect the molecular markers that identify those parasites until after the virus had spread to Africa, killing millions.

"We must ensure that we use this technology to keep us a step ahead of the parasite and prevent history from tragically repeating itself in Africa," Menard said.

The KARMA study identified 70 new mutations of the K13 protein, adding to the 103 already known, including four that indicate artemisinin

resistance.

In essence the study confirmed that the most common gene mutation detected in Africa is not linked to the resistance.

The research did discover two isolated outbreaks of drug-resistant strains in border regions of Cambodia, Vietnam and Laos, as well as western Burma and southern Thailand, which suggests that international efforts to contain the spread of resistant parasites have been effective.

Menard said that patients infected with resistant malaria strains are generally treated with a combination of drugs, especially older anti-malarial drugs that are effective when administered in doses, similar to antibiotic treatment.

The WHO has also recommended extending treatment of those patients up to seven days.

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