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Melanesian offspring prove less susceptible to malaria

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"Severe malaria is not one clinical syndrome. Kids can present in a whole lot of different ways," Dr Manning says. Credit: Austronesian Expeditions

Melanesian children have lower fatality rates due to severe malaria than children in other geographic regions, according to UWA researchers.

A recent study has examined the differences between Melanesian (a subregion of Oceania), African and Asian cases of childhood malaria in terms of clinical features and outcome.

UWA School of Medicine and Pharmacology Associate Professor and co-author Dr Laurens Manning says the study is the first global meta-analysis of its kind.

Previous observational studies indicated that malaria mortality is lower in Melanesia but that this is the first to test that theory within a formal framework, he says.

The researchers compared 65 different international studies.

Results showed that Melanesian children had lower rates of hypoglycaemia, lower fatality rates and lower cerebral malaria -associated fatality rates compared with African children.

Lower rates of hypoglycaemia in Melanesian children may be one possible explanation, the researchers say.

"Children with hypoglycaemia have extremely high mortality rates," Dr Manning says.

"The rate of kids presenting with hypoglycaemia is extremely low in Melanesia as compared with Africa and Asia," he says.

Another possible explanation is that concomitant bacteremia, particularly non-typhoidal salmonellae, occurs more frequently in African children with severe malaria and this is an independent risk factor for mortality.

Other factors such as availability of effective antimalarial therapy, immunological cross-protection from exposure to Plasmodium vivax and a high prevalence of protective genetic polymorphisms may also be contributed to regional differences.

"Severe malaria is not one clinical syndrome. Kids can present in a whole lot of different ways," Dr Manning says.

This can include being in a comatose state, having severe anaemia, hypoglycaemia, jaundice, renal failure and other conditions.

Whilst there is good evidence that fatality rates due to hypoglycaemia and metabolic acidosis are declining, there is a lack of change in fatality rates due to cerebral malaria, the researchers say.

Previous studies have found that overall the rate of malaria mortality cases are declining, he says.

"[But] you can't translate that to say that if you're a child presenting with malaria in Africa that you're going to be treated better."

Declining global malaria mortality rates do not necessarily equate to better inpatient management of severe malaria, he says.

The same principle applies to different clinical conditions, he says.

"If you present with a [malaria-induced] coma there is no difference in the mortality rates between 1985 and 2010."

More information: Manning L, Laman M, Davis WA, Davis TME (2014) "Clinical Features and Outcome in Children with Severe Plasmodium falciparum Malaria: A Meta-Analysis." *PLoS ONE* 9(2): e86737. DOI: 10.1371/journal.pone.0086737

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