

Scoring systems for prediction of malaria and dengue fever in returning travelers

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Background

Fever is a common symptom among travelers arriving from tropical areas, and to promptly distinguish severe illnesses from self-limiting febrile syndromes is important.

Methods

Patients seeking care with fever within two months after travel at Karolinska University Hospital, Stockholm, Sweden were included in the study. Scoring systems for malaria and dengue were developed based on forward stepwise regressions with combination of clinical indicators.

Results

In total, 2113 adults and 202 children were included during 2015-2020, with 112 cases of malaria and 90 cases of dengue. Malaria was predominantly seen in patients presenting with thrombocytopenia, anemia, and fever ≥ 39.5 °C after visiting Sub-Saharan Africa. Leukopenia, muscle pain and rash after traveling to Asia or South/Latin America indicated high probability of dengue. In the scoring systems ranging from 0-7, scores of ≥ 3 points predicted a high odds ratio (OR) for dengue in adults 42.7 (95% CI 25.3–71.9) and children 39.4 (95% CI 3.8–404.2), as well as for malaria, OR adults 61.4 (95% CI 34.7–108.7) vs. OR children 31.5 (95% CI 6.5–152.1).

Conclusion

The scoring systems provide a novel tool for structured assessment of tropical fever and highlight clinical signs associated with severe etiology.