Review of: "Misdiagnosis of Dengue Fever as Malaria and Typhoid Fever and Their Co-infection in Rural Areas of Southwest Nigeria"

Abiodun Obembe[1]

1 Kwara State University

Potential competing interests: No potential competing interests to declare.

Qeios Report

Reviewers report

Title: Misdiagnosis of Dengue Fever as Malaria and Typhoid Fever and Their Co-infection in Rural Areas of Southwest Nigeria

Comments

Abstract

1. Line 3-4 under background: says ‘As studies have reported a high prevalence of the dengue

virus in areas of Nigeria’, Is there any literature evidence supporting this in the body of the work?

1. Line 3-4 under background: says ‘dengue and malaria have the same arthropod vector. This should be corrected. The arthropod vectors (*Anopheles* and *Aedes*) are not the same.
2. Line 1 under Methods: says ‘A total of 1074 samples were taken from rural health facilities’. The authors should be specific on the type of samples collected (blood).
3. Line 2 under Methods reads: ‘Those testing positive were tested for the DENV NS1 protein, DENV IgM, DENV IgG, and RT-PCR. Blood samples cannot be tested for RT-PCR, it can only be tested using RT-PCR.

Introduction

Lines 6 from the bottom reads: ‘Nigeria accounts for over 27% of malaria cases worldwide’. The authors should include the appropriate reference for this.

Methods

Study design

1. Line 1-2 from the bottom reads: ‘Samples were collected from the month of October to the end of September the **preceding** year’. What is this supposed to mean? Can events happen backwards? I believe the authors meant to say

the ‘following’ year and not the ‘preceding’ year.

2. Lines 1-2 from the top under sample collection says: ‘samples were collected from patients seeking diagnosis in institutions in rural areas of Southwest Nigeria’. Would the authors consider mentioning the specific rural areas in southwest Nigeria?

Discussion

1. Lines 2-10 from the top say: DENV fever co-infection with malaria and typhoid fevers was analyzed using 4 different parameters, which included NS1, IgM, IgG antibodies, and later confirmed with RT-PCR. The NS1 protein is the first to be produced in the infection, which ensures the first early window is not missed in DENV infection; the IgM antibody is the first to be produced in response to an infection, while the IgG will remain even in convalescence. A combination of all these ensures that no case is missed during the period of the study. The RT-PCR is used to validate all the results from the serological analysis and that any DENV missed by the ELISA technique will be captured by RT-PCR, while at the same time quantifying the antigen in each sample. The potential source of bias in this study is the likelihood of false negative or false positive results, which has been taken care of by a combination of confirmatory tests carried out.

All of these describe methodology and should not be repeated in the discussion.

1. The limitation of the study, starting from line 11, should be taken to the end of the discussion section.

1. Paragraph 3, Lines 5-6 from the top says that: ‘the malaria mosquito vector has its habitat in the forest [16].

This is not correct. In fact, the reference [16] for this statement refers only to the *Anopheles dirus* species complex alone, which is not common/found in Nigeria. The malaria mosquitoes in Nigeria are found in breeding sites around human dwellings, which are mostly created by human activities. The authors, in agreement with this, noted in the next line that there is overlap of Anopheles and Aedes breeding habitats in Nigeria and not in the Netherlands.

1. Paragraph 3, Line 5 from the bottom reads: ‘The Senegal report also opposed results from this study, and a major factor responsible for that is due to the time of the year and city where the Senegal sampling was done, since both countries are in sub-Saharan Africa, as indicated by the 2.84% Dengue virus and malarial concurrent infection within the Ilorin metropolis in Nigeria’

Are the authors supposed to be comparing the Senegal work with the Ilorin work? Or with their own work? The discussion is supposed to consider how and why the authors’ work differs from other works.

1. Paragraph 7, line 1: What do the authors mean by “Total samples for malaria, typhoid, and DENV following a similar pattern of distribution”?

Conclusion

Line 1: that ‘lots’ of dengue-positive samples. This is not scientific. The authors should avoid the use of such words like

‘lots’. The specific percentage should be mentioned instead.

Minor revisions

1. All scientific names (*Aedes*, *Plasmodium*) should be in italics.
2. Under Discussion, Paragraph 6, Line 3 from the bottom: ‘India’ should be replaced with ‘Indian’
3. Line 1 under conclusion: are should be replaced with ‘were’. The work has been done. The authors should stick to the use of past tense.
4. Line 4 under conclusion: ‘undermining or’ should be removed.
5. Line 5 under conclusion: like should be replaced with likely.
6. Line 1 under Authors’ contributions: ‘involved from’ should be replaced with ‘involved in’