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Malaria and Lassa fever co-endemicity in North Eastern Nigeria: Insights from a retrospective study of febrile illnesses

Hafizah Sani Sulaiman[1,&], Yusuf Bara Jibrin[2], Ibrahim Mahmood Maigari[2], Ibrahim Adamu[2,3], Hussaini Ismail Dangambo[2], Alejandra Garcia Naranjo[4]

[1]Abubakar Tafawa Balewa University Teaching Hospital, Bauchi, Nigeria, [2]Abubakar Tafawa Balewa University, Bauchi, Nigeria, [3]Department of Medicine, Gombe State University, Gombe, Nigeria, [4]MSF OCG project medical referent, Bauchi, Nigeria

[&]Corresponding author: Hafizah Sani Sulaiman, Abubakar Tafawa Balewa University Teaching Hospital, Bauchi, Nigeria **Email:** sulaimanhafizah517@gmail.com

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Introduction

Lassa fever and malaria are endemic in Nigeria and often present with overlapping clinical symptoms, complicating the timely diagnosis and management of febrile illnesses-potentially contributing to adverse outcomes. Despite this clinical overlap, the burden and impact of malaria among individuals evaluated for Lassa fever remain poorly characterised, particularly in Northeastern Nigeria. This study aimed to determine the prevalence and clinical implications of malaria parasitaemia among individuals with suspected Lassa fever, including both PCR-positive and PCR-negative cases.

Methods

A retrospective cross-sectional study was conducted using line-listed data from suspected Lassa fever cases managed at Abubakar Tafawa Balewa University Teaching Hospital (ATBUTH) Bauchi between November 2024 and May 2025. Patients who underwent both Lassa PCR testing and malaria testing were included. Data on Lassa Fever PCR and malaria testing result were extracted from medical records. Descriptive statistics were used to estimate malaria burden, while Chi-square tests and logistic regression analyses assessed the association between malaria-Lassa co-infection and clinical outcomes, including mortality and length of hospital stay (<10 days vs >10 days).

Results

Of 1,764 individuals evaluated for Lassa fever, 437 (24.8%) were PCR-positive, and 1,327 (75.1%) were PCR-negative. Malaria testing was performed in 641 individuals (36.3%), and 11.4% of Lassa fever PCR-negative individuals had malaria. Among the 135 Lassa fever PCR-positive patients who had malaria test results, 27 (20.0%) were co-infected with malaria. Lassa fever–malaria co-infection showed no statistically significant association with mortality (p = 0.27; OR: 0.31, 95% CI: 0.04–2.48) or prolonged hospitalisation (p = 0.54; OR: 1.31, 95% CI: 0.55–3.12).

Conclusion

This study reveals a higher prevalence of malaria parasitaemia among Lassa fever PCR-positive cases (20.0%) compared to PCR-negative cases (11.4%) among individuals evaluated for Lassa fever, suggesting that malaria–Lassa co-infection, though

not significantly associated with mortality or prolonged hospital stay, is not uncommon. These findings underscore the clinical complexity of managing febrile illnesses in co-endemic regions, such as Northeastern Nigeria. Routine dual testing for both malaria and Lassa fever in suspected cases is essential to improve diagnostic accuracy, prevent misclassification, and ensure timely and appropriate treatment, ultimately strengthening health system responsiveness in endemic settings.