

Correlation of RT PCR CT values with the outcomes of Lassa fever patients in Bauchi State, Nigeria

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Introduction

Lassa fever is a viral hemorrhagic disease prevalent in West Africa, characterized by a broad range of clinical symptoms. The diagnostic gold standard remains Reverse Transcriptase Polymerase Chain Reaction (RT-PCR), with the cycle threshold (CT) value offering an indirect assessment of viral load. Despite its utility, the relationship between RT PCR CT values obtained from subtype lineage III and clinical outcomes has not been well studied. To determine the relationship between RT PCR CT values and clinical outcome among Lassa fever patients treated in Bauchi state, Nigeria.

Methods

A retrospective cohort analysis was carried out on patients with laboratory-confirmed Lassa fever admitted to ATBUTH between November 2024 to April 2025. Information on CT values at diagnosis and patient outcomes was collected. Statistical analysis was conducted using IBM SPSS (version 27), and chi-square test and Pearson's correlation analysis were employed to explore the association between CT values and disease severity or clinical outcomes.

Results

The study found that lower RT-PCR CT values, indicating higher viral load, were significantly associated with poorer outcomes among Lassa fever patients in Bauchi State. In particular, the L Gene showed a strong correlation with mortality ($r = 0.204$, $p = 0.007$). In contrast, the GPC Gene showed a weaker, non-significant relationship with outcomes ($r=0.138$, $p=0.062$). These findings suggest that CT values from the L gene may serve as a reliable prognostic marker for predicting patient outcomes and guiding clinical management.

Conclusion

CT values obtained through RT-PCR could serve as valuable prognostic markers in the management of Lassa fever. Recognizing patients with low CT values early may facilitate effective triage and timely intervention. Further prospective research is needed to confirm these results and inform clinical practice.