

## Clinical and paraclinical correlates of severe Lassa fever: First results of the Irrua Lassa fever sepsis study

Osahogie Isaac Edeawe<sup>1,2,&</sup>, Cyril Erameh<sup>1,2</sup>, Sylvanus Okogbenin<sup>1,3</sup>, Ephraim Ogbaini-Emovon<sup>1</sup>, Reuben Agbons Eifediyi<sup>3</sup>, Joseph Okoeguale<sup>1,3</sup>, Matin Kohsar<sup>4,5</sup>, Benevolence Ohomoime<sup>1</sup>, Rita Esumeh<sup>1</sup>, Sule Pius<sup>1</sup>, Charity Oseghale<sup>1</sup>, Osahon Otaigbe<sup>1</sup>, Ludmilla Unrau<sup>5</sup>, Stephan Günther<sup>5,6</sup>, Michael Ramharter<sup>4,6</sup>, Lisa Oestereich<sup>5,6</sup>, Ester Orban<sup>4,5</sup>, Till Omannen<sup>4,5,6</sup>

<sup>1</sup>Institute of Viral and Emergent Pathogens Control and Research, Irrua Specialist Teaching Hospital, Irrua, Edo State, Nigeria, <sup>2</sup>Department of Internal Medicine, Irrua Specialist Teaching Hospital, Irrua, Edo State, Nigeria, <sup>3</sup>Department of Obstetrics and Gynecology, Irrua Specialist Teaching Hospital, Irrua, Edo State, Nigeria, <sup>4</sup>Department of Tropical Medicine, Bernhard Nocht Institute for Tropical Medicine & I. Department of Medicine, University Medical Center Hamburg-Eppendorf, Hamburg, Germany, <sup>5</sup>Department of Virology, Bernhard Nocht Institute for Tropical Medicine, Hamburg, Germany, <sup>6</sup>German Center for Infection Research, Partner Site Hamburg – Lübeck – Borstel – Riems, Hamburg, Germany

&**Corresponding author:** Osahogie Isaac Edeawe, Institute of Viral and Emergent Pathogens Control and Research, Irrua Specialist Teaching Hospital, Irrua, Edo State, Nigeria. Email: osahogieedeawe@gmail.com

**Citation:** Osahogie Isaac Edeawe et al., Clinical and paraclinical correlates of severe Lassa fever: First results of the Irrua Lassa fever sepsis study. Journal of Interventional Epidemiology and Public Health. 2025;8(ConfProc5):00087.

**DOI:** <https://doi.org/10.37432/jieph-confpro5-00087>

**LINK:** <https://afenet-journal.org/clinical-and-paraclinical-correlates-of-severe-lassa-fever-first-results-of-the-irrua-lassa-fever-sepsis/>

**Received:** 08 Apr 2025, **Accepted:** 09 Jul 2025, **Published:** 12 Aug 2025

**Keywords:** Lassa fever, pathophysiology, hyperinflammation, bleeding, secondary bacterial infection

This is part of the proceedings of the ECOWAS 2nd Lassa fever International Conference in Abidjan, September 8 – 11, 2025

© Osahogie Isaac Edeawe et al. Journal of Interventional Epidemiology and Public Health. This is an Open Access article distributed under the terms of the Creative Commons Attribution International 4.0 License (<https://creativecommons.org/licenses/by/4.0/>), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

---

### **Introduction**

Lassa fever (LF) is a severe zoonotic disease endemic to West Africa, with Nigeria experiencing annual outbreaks. Clinical presentation ranges from asymptomatic to severe illness, with case fatality rates exceeding 20% in hospitalized patients. Hemorrhage is uncommon, and the actual clinical pathophysiology is poorly understood. The SEPSIS study investigates whether LF triggers a hyperinflammatory response, either directly or via secondary bacterial infections, to guide therapy.

### **Methods**

Since January 2024, adult RT-PCR–confirmed LF cases have been recruited at Irrua Specialist Teaching Hospital (ISTH), Nigeria. Bidaily study visits include clinical assessments and laboratory investigations for inflammatory and bleeding markers. Blood cultures are also obtained and analyzed if positive. Here, we present a preliminary analysis of the clinical and paraclinical outcomes of SEPSIS study patients with severe LF admitted to the intensive care unit at ISTH.

### **Results**

As of 17 January 2025, 34(27%) enrolled patients were admitted to the ICU and included in this preliminary analysis. Mean age was 44(±16) years; 65% were male. Patients had symptoms for 12.4(±5.4) days before admission. Case fatality rate was 44%(n=15). Ribavirin was administered to 33 patients; 27 also received dexamethasone. Supportive care included transfusions(n=16), hemodialysis(n=17), and oxygen(n=23). AKI was observed in 82%; bleeding, neurological symptoms, and severe anemia were common. Inflammatory markers were markedly elevated (mean CRP:140 vs 77mg/L; mean WBC:27 vs 11 10<sup>3</sup>/mm<sup>3</sup> in fatal vs non-fatal). Sepsis biomarkers (IL-6, PCT) also showed a pronounced elevation correlating with severity. Blood cultures were positive in 10 of 28 ICU patients; *Staphylococcus spp.*, *E. coli*, *Acinetobacter baumannii*, and other pathogens were detected.

### **Conclusion**

Severe LF cases treated at the ISTH ICU showed hyperinflammation, organ dysfunction, and frequent secondary bacterial infections, sometimes with (multi-)drug-resistant pathogens. We recommend increased efforts for the development of host-directed, anti-inflammatory therapy, in addition to evaluation and treatment of secondary infections.