UKE Paper of the Month May 2026

Favipiravir for Lassa fever: an open-label, randomized controlled phase II trial

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ABSTRACT:

Lassa Fever (LF) is a viral hemorrhagic fever endemic to West Africa. It has a high case fatality in hospitalized patients and limited treatment options. Based on preclinical evidence, high-dose favipiravir is a promising antiviral treatment alternative. This randomized controlled open-label phase II clinical trial conducted at two reference hospitals in Nigeria evaluated favipiravir in the treatment of Lassa fever. Primary endpoints were the description of classical pharmacokinetic parameters (maximum plasma concentration, time to reach maximum plasma concentration, area under the curve, half-life, volume of distribution) as well as the safety and tolerability of favipiravir compared to ribavirin in the treatment of acute LF. Hospitalized adult patients with mild to moderate RT-PCR-confirmed LF were eligible to participate. 41 patients were randomized (ribavirin n=21; favipiravir n=20) and 36 completed the 10-day follow-up period. 19 (46.3%) participants were female, the median age was 37 (IQR 26; 48) years. The primary endpoints were met. Pharmacokinetic analysis of favipiravir in a one-compartment model indicated reliable exposure with maximum plasma concentration of 50.9 (IQR 42.1; 75.1) mg/L in steady state, half-life of 10.9 (IQR 8.2; 17.1) hours, and AUC(0-240h) of 9275 (IQR 7139.4; 15794.8) mg/L*h. The 30 drug-related treatment-emergent adverse events were evenly distributed between the treatment arms; 16 (53.5%) events occurred in the favipiravir group, and none of these were classified as severe or serious. Anemia was the most frequently observed adverse event in the ribavirin arm and vomiting in the favipiravir arm. All study participants survived and were successfully discharged from the isolation ward. Based on pharmacokinetic data, an optimized favipiravir regimen is suggested for future clinical evaluation. This to our knowledge first clinical trial evaluating favipiravir for the treatment of Lassa fever indicates its potential as a safe and well-tolerated alternative treatment regimen for Lassa fever. Clinicaltrials.gov identifier: NCT04907682.

STATEMENT

Lassa fever is a priority disease on the WHO research and development (R&D) blueprint for epidemics because it exerts annual large outbreaks of this deadly viral haemorrhagic disease in large parts of West Africa, while no evidence-based treatment regimens are available. Based on the successfully collaboration between UKE and the Bernhard Nocht Institute for Tropical Medicine in the field of Viral Haemorrhagic Fever Research, this study constitutes the first regulatory compliant, randomized controlled clinical trial evaluating a new treatment candidate for Lassa fever. Participants were recruited from the world's largest Lassa fever treatment centres in the highest transmission region of West Africa. This landmark clinical trial constitutes therefore an important milestone in WHO's ambitions to improve evidence-based treatment regimens for VHF. This trial forms the basis for the formation of the INTEGRATE Consortium, which constitutes the international research consortium evaluating new and repurposed antiviral and host-directed drugs against Lassa fever in which Prof. Michael Ramharter is an international Principal Investigator.

BACKGROUND:

This work was performed under the leadership of a collaboration of the Division of Tropical Medicine, I. Department of Medicine, and the Department of Clinical Research at BNITM (both headed by Prof. Michael Ramharter). This collaboration combines the clinical expertise from the UKE with the virological expertise as WHO-Collaborating Center of BNITM (Prof Stephan Günther, Dept. of Virology, BNITM), which made this unique research program possible. The clinical trial consortium includes the Department of Pharmacy at the University of Hamburg, the Irrua Specialist Teaching Hospital and Federal Medical Center Owo, Nigeria, Institut national de la santé et de la recherche médicale, France and the Alliance for International Medical Action, France. The clinical trial was coordinated by Dr Mirjam Groger, who heads a working group specialised in the implementation of GCP-compliant clinical trials in the field of poverty-related infectious diseases in sub-Sahara Africa. This work was made possible by funding from BNITM, GHPP, German Foreign office, DZIF, PANDORA-ID network and DFG via the Collaborating Research Center 1648 (SFB 1648/1 2024–512741711) „Emerging Viruses: Pathogenesis, Structure, Immunity“. Dr Cyril Erameh as first author has led the clinical trial in his role as local Principal Investigator as part of his medical thesis project at UKE under the supervision of Prof Michael Ramharter.