

Letter to the editors



Current state of Lassa fever in Nigeria and its risk of progression into central nervous system disorders

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Current state of Lassa fever in Nigeria and its risk of progression into central nervous system disorders

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To the editors of the Pan African Medical Journal

Lassa fever is a viral hemorrhagic fever of zoonotic origin transmitted through the urine and faeces of the multimammate rat *Mastomys natalensis* [1]. In 1969, Lassa fever was initially identified in Nigeria, and countless cases have been reported since then in low to mild situations. Rainfall patterns have been associated with increases in Lassa fever cases

and exposure rates at specific times of the year, causing a prevalence of disease that primarily affects the body's vascular system, leading to symptoms such as fever, fatigue, and bleeding. In severe cases, it can progress to multi-organ failure and death [2]. Beyond its acute impact, Lassa fever also presents a concerning risk of progression into central nervous system (CNS) disorders such as coma, seizures, restlessness, disorientation, confusion, sensorineural deafness, and irritability, which are initial signs, while late manifestations include psychiatric disorders and ataxia [3]. This further complicates the health system in Nigeria. The Nigeria Centre for Disease Control and Prevention reported that about 2,122 suspected cases, 411 confirmed cases, and 72 deaths have been recorded from Lassa fever in Nigeria this year as of February 11, 2024 [4]. Hence, the current state and new outbreak of Lassa fever in Nigeria are troubling (Table 1) [5]. Despite efforts to control its spread, the disease remains endemic in many parts of the country. Notably, Lassa fever can also affect the central nervous system. The virus can cross the blood-brain barrier and infect the CNS, leading to various neurological complications. These complications may include encephalitis (inflammation of the brain), meningitis (inflammation of the membranes surrounding the brain and spinal cord), and other neurological disorders [6]. The recent upsurge in cases has further highlighted the urgent need for a comprehensive approach to preventing its spread and increased awareness of the neurological risks associated with Lassa fever.

In the future, several crucial issues must be resolved to enhance Lassa fever control and prevention in Nigeria before it poses a problem. Comprehensive environmental sanitation practices, like sealing dustbins, keeping food in sealed containers, and blocking rat entry points, are advised by the Nigeria Centre for Disease Control and Prevention (NCDC). Additionally, it's crucial to avoid bush burning, practice proper personal cleanliness, and control rats by trapping them. Response methods include activating

emergency operations centers, creating molecular laboratories for fast testing, and deploying rapid response teams to investigate outbreaks and trace contacts. Community participation, risk communication, and environmental response programmes can also be implemented [5]. When a patient has Lassa fever, medical professionals should be on the lookout for indications of CNS involvement and should start treatment right away to avoid potentially dangerous consequences. Although early presentation and diagnosis are often difficult to achieve, the nonspecific nature of the illness's initial presentation poses a challenge during outbreaks and increases the risk for healthcare workers [7]. However, interventions should be targeted at early diagnosis and treatment, which significantly increase the chances of patient survival as there is currently no licensed vaccine for Lassa fever [8].

To address Nigeria's expanding Lassa fever burden, current research institutions must be expanded to perform clinical trials and research on not only Lassa fever but also other neglected diseases. Building on the work of the African Centre of Excellence for the Genetics of Infectious Diseases (ACEGID) at Redeemer's University, which leads viral sequencing efforts in Nigeria, is critical. African Centre of Excellence for the Genetics of Infectious Diseases should broaden its training programmes to include scientists from other African countries. Furthermore, accessible technology such as nanopore sequencing should be made available in all endemic countries to improve the genetic diversity of Lassa fever virus (LASV). Government strategies should prioritize rebuilding vulnerable health systems and encouraging health-seeking behaviours in Nigeria's Lassa fever-endemic areas [9]. Additionally, further research is needed to better understand the mechanisms of CNS involvement in Lassa fever and to develop more effective treatments for neurological complications in Nigeria [10]. There is a need for urgent research efforts from neuroscientific societies both within Nigeria and internationally, like the International Brain

Research Organization (IBRO), to support educational campaigns and research into the relationship between Lassa fever and central nervous system disorders aimed at prevention. These targeted campaigns should focus on educating individuals about the risks of Lassa fever progressing into CNS disorders causing deaths and the steps they can take to protect themselves [11].

Conclusion

Addressing the current state of Lassa fever in Nigeria and its risk of progression into CNS disorders requires a multi-faceted approach. Through support for advancing healthcare infrastructure, increasing public awareness, and supporting research efforts, we can work towards reducing the burden of Lassa fever, which leads to progressive central nervous system disorders, and improving the health outcomes of individuals in Nigeria.

Competing interests

The authors declare no competing interests.

Authors' contributions

All authors contributed equally to the writing of this paper and have read and agreed to the final manuscript.

Tables

Table 1: suspected and confirmed Lassa fever incidents in Nigeria from 2016 to 2022

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Table 1: suspected and confirmed Lassa fever incidents in Nigeria from 2016 to 2022

Year	Suspected cases	Confirmed cases	No. of deaths
2017	733	143	71
2018	3498	633	171
2019	5057	833	174
2020	6791	1189	244
2021	4654	510	102
2022-week 1-51	8130	1055	189
2023-week 1-51	8978	1227	219
2024-week 1-6	2,122	411	72