



PREVALENCE OF LASSA FEVER INFECTIONS IN ONDO STATE, NIGERIA

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ABSTRACT: *Emerging and re-emerging infectious diseases have been of immense threat to public health in this 21st century. Among these diseases are COVID-19, Lassa fever, monkeypox, yellow fever, ebola, chicken pox disease and many others. Out of all the above mentioned diseases, Lassa fever is the most recurrent and trending infectious disease in Nigeria which affects many states. It is of great concern that Ondo State is one of the major epicentres of the virus. The objective was to examine the incidence of Lassa fever in Ondo State, Nigeria. A descriptive research design using a purposive sampling technique was used to collect data. Findings revealed that in 2018, Ondo State accounted for 25% of total Lassa fever incidence cases in Nigeria, which suggests that Ondo State was one of the major epicentres of the virus in 2018. As of March 19, 2022, the figure rose to 28% of total Lassa fever incidence. This implies that Ondo State was also the major epicentre of the virus as of March 19, 2022. Furthermore, in the 42nd week of 2022, the predominant age group of the patients affected by Lassa fever in Ondo State was 21–30 years. There has been a significant increase in the number of suspected and confirmed cases as compared with 2021. The factors contributing to the reemergence of LF epidemics in Nigeria are nosocomial transmission, travel and migration, the public health system, socio-cultural factors, conflicts and the COVID-19 pandemic. In conclusion, health education of indigenous people at the community levels (especially residents of Owo and Ose Local Government Areas) about LF causes, preventive measures and avoidance of cultural practices that could predispose them to Lassa fever infection should be given priority. Also, case management capacity and contact tracing must also be strengthened through the establishment of well-equipped and dedicated treatment/referral centers in the epicentre. Training and re-training of clinical care teams should also be given priority.*

KEYWORDS: Prevalence, Lassa Fever, Infections.



INTRODUCTION

In recent years, the Lassa fever outbreak has become a public health concern; this condition is brought about by the Lassa virus, a member of the Arenaviridae family of single-stranded RNA hemorrhagic fever viruses (Gompf & Davis, 2021). It is an acute febrile viral infection that affects West Africa and several other places for one to four weeks (Gompf & Davis, 2021). Lassa fever is an acute febrile viral illness that lasts one to four weeks and occurs in West Africa and some areas beyond. It is caused by the Lassa virus, a single-stranded RNA haemorrhagic fever virus from the family Arenaviridae (Gompf & Davis, 2021).

In West Africa alone, there are thought to be 300,000 to 500,000 cases of Lassa fever with hundreds of deaths. The overall case fatality rate is 1-2%, but during outbreaks, it may be as high as 50%. Lassa fever has killed about 5,000 to 10,000 people worldwide and is thought to infect two million people annually (Fatiregun et al., 2019; Dalhat et al., 2022; Wogu, 2018).

Lassa fever (LF) has negative effects on the economy and health security and is linked to high morbidity and death (Arruda, et al, 2021). Concerns regarding the export of Lassa Fever (LF) to nations beyond the region have grown as a result of an increase in the number of reported cases in the West African endemic region (Arruda et al., 2021). There have been at least 35 recorded exporting cases of LF between the first case in 1969 and 2020 (Kofman et al., 2019; Overbosch et al., 2020). Several people have been returned home due to the risk of LF transmission during outbreaks in endemic areas or exposure during medical procedures (Kofman et al., 2019; Overbosch et al., 2020); these cases were exported from seven West African countries to nine countries in Europe, Asia, South Africa, and North America. It is widespread in West Africa, including Nigeria, where it is particularly hazardous to the public's health (Ossai et al., 2020).

MATERIALS AND METHODS

Study Area and Sampling

The study area is Infection Control and Research Centre (ICRC), Federal Medical Centre Owo, Ondo State.

Health Care Delivery in Ondo State

Presently, the only federal hospital in the state is the Federal Medical Centre, Owo. The state government has Specialist hospitals at Akure, Ikare, and Ondo while it has established general hospitals at Idanre, Igbara-Oke, Ile-oluji, Owo and Okitipupa. There is a state government neuro-psychiatric hospital at Akure. There are many primary health centres with consulting medical doctors in the local government headquarters while mobile health centres are available at the riverine areas. The local government authorities operate dispensaries and maternity homes in all towns and many villages (Department of Research and Statistics of Ondo State, 2012). The health care delivery system in the state is managed by all the three tiers of government in Nigeria. Privately owned clinics and mission hospitals also provide health care services and these private health care institutions operate according to regulations on health policy issued by the state ministry of health. The only federal tertiary institution in the state is the Federal Medical Centre (F.M.C.), Owo which became one of the epicentres for Lassa fever



treatment in 2016. The treatment centre was named Infection Control Centre but was later upgraded to Infection Control and Research Centre (ICRC) in 2018 because of different research works that are being carried out there on Lassa fever.

Federal Medical Centre, Owo is the only federal government owned tertiary healthcare institution in Owo and in the entire Ondo State. It is a 320 bedded tertiary health care centre founded in 1994 with average monthly bed occupancy rate of 65–70%. It provides specialist care in medicine, surgery, orthopaedics, obstetrics and gynaecology, psychiatry, family medicine, community health, paediatrics, ophthalmology, otorhinolaryngology and a dental clinic. It has a major accident and emergency unit to which all specialist clinics are attached. It provides 24 hours nursing service in all the specialist areas and receives referred cases from Ondo State Specialist Hospitals and other states, such as Kogi, Edo and Ekiti States. The institution is appropriate for this study because it is the only approved tertiary institution in Ondo State by the Federal government and recognized by the World Health Organization (WHO), Nigeria Centre for Disease Control (NCDC) and some Non-Governmental Organizations (NGOs) within and outside Nigeria for treatment of Lassa fever. The institution has trained and certified doctors and nurses who are knowledgeable and have technical know-how of Lassa fever treatment. Also, the institution has a standard laboratory for Lassa fever screening and there are competent Laboratory scientists who conduct the screening tests.

Sampling

Purposive sampling technique was used to collect the data.

Target Population

This is made up of male and female patients with no limitation to age ranges that were admitted as a suspect or diagnosed with Lassa fever in Ondo State. The two major local governments area that are usually affected with Lassa fever epidemics are Owo and Ose. Other local governments, such as Akure, Ondo, Ikare, Akungba-Akoko and others, are also affected but the number of cases from these areas are far lesser than those from Owo and Ose. After males and females are infected with Lassa fever in any Local government in Ondo state, they are referred to ICRC, FMC Owo for treatment.

Data Collection Procedure

Data for this study was collected using a retrospective record of patients' admission into ICRC, FMC, Owo from January 2018 to March 2023. The duration for data collection was about 5 days.

Data Analysis

Data collected were analyzed and presented in frequencies and percentages.



RESULTS/ FINDINGS

Results

In 2018, from January to December, the total admission was 265 and 122 patients tested positive to Lassa fever. In 2019, the total admission increased to 309 and the number of positive cases was more than twice that of the previous year (253), likewise the mortality rate. In 2020, the number of admissions also increased to 351 and the number of positive cases rose to 328, with further increase in mortality from 33 to 47. However, in 2021, there was a decline in the number of admissions and the number of positive cases by almost one third of the previous year. Mortality also reduced by almost half. In 2022, the total admission doubled again, likewise the number of positive cases. As at March, 2023, 155 positive cases were recorded.

DISCUSSION

In 2018, one hundred and twenty-two (122) patients tested positive for Lassa fever in Ondo State. This is about 25% of the Lassa fever incidence in the country. This is incongruent with the findings of Nigeria Centre for Disease Control (NCDC), 2018 which stated that 3 states (Edo, 44%; Ondo, 25%; and Ebonyi, 11% each) accounted for 80% of total Lassa fever incidence while the remaining 20 states accounted for 20% of Lassa fever cases.

In 2019, two hundred and fifty-three (253) positive cases were reported in Ondo State. This was about 34% of the Lassa fever incidence in the country. This is in consonance with the findings of Izha et al. (2022) which stated that in 2019, 6 states (Edo, 37%; Ondo, 34%; Plateau, 34%; Taraba, 5%; and Bauchi and Ebonyi, 7% each) accounted for 94% of the total Lassa fever incidence while the remaining 17 states accounted for 6% of the Lassa fever cases, indicating that Edo, Plateau and Ondo states were the major epicentre of the virus as at 2019. In 2020, the number of positive cases rose to 328 with further increase in mortality from 33 to 47. This was about 36% of the Lassa fever incidence in the country. This is in agreement with the report of Nyenke et al. (2022) which stated that in 2020, three states (Edo, 32%; Ondo, 36%; and Ebonyi, 7%) accounted for 75% of the total Lassa fever incidence while the remaining 24 states accounted for 25% of Lassa fever cases. This indicated that Edo and Ondo states were the major epicentres of the virus in 2020. However, in 2021, there was a decline in the number of positive cases by almost one third (108) of the previous year. This represented about 34% of the Lassa fever cases in the country for that year. This was corroborated by the report of Nyenke et al. (2022) that in 2021, three states (Edo, 42%; Ondo, 34%; and Bauchi, 8%) accounted for 84% of the total Lassa fever incidence while the remaining 14 states accounted for 16% of the Lassa fever cases. This indicates that Edo and Ondo States were the major epicentres of the virus in 2021.

As at March 2022, 154 cases of Lassa fever positive cases had been admitted. This was about 28% of the total cases recorded in the country. This is in line with the findings of Izha et al. (2022) which stated that as at March 19, 2022, three states (Edo, 24%; Ondo, 28%; and Bauchi, 15% each) accounted for 77% of the total Lassa fever incidence while the remaining 23 states accounted for 23% of the Lassa fever cases, implying that Edo and Ondo States were the major epicentres of the virus as at March 19, 2022.



CONCLUSION

Lassa fever has become a yearly epidemic in Ondo State and in the entire country. It is therefore necessary to take proactive measures in order to contain the spread of the virus. The following measures can be taken: Health education of indigenous people at the community levels (especially residents of Owo and Ose Local Government Areas) about LF causes should be prioritized. Preventive measures and avoidance of cultural practices that could predispose them to Lassa fever infection should be given priority as well.

RECOMMENDATIONS

Case management capacity and contact tracing must also be strengthened through the establishment of well-equipped and dedicated treatment/referral centres in the epicentre.

Training and re-training of clinical care teams should also be taken seriously.

Involvement of community leaders in various local governments in the policy making that will reduce the spread of Lassa fever in their localities.

REFERENCES

- Arruda, L. B., Haider, N., Olayemi, A., Simons, D., Ehichioya, D., Yinka-Ogunleye, A., ... & Kock, R. A. (2021). The niche of One Health approaches in Lassa fever surveillance and control. *Annals of clinical microbiology and antimicrobials*, 20(1), 29.
- Department of Research and Statistics of Ondo State (2012) Facts and figures on Ondo State Ministry of Economic Planning and Budgeting Akure, Ondo State. Retrieved from <http://nigerianstat.gov.ng/pages/download/127> on 9th July, 2014.
- Dalhat, M. M., Olayinka, A., Meremikwu, M. M., Dan-Nwafor, C., Iniobong, A., Ntoimo, L. F., ... & Adetifa, I. (2022). Epidemiological trends of Lassa fever in Nigeria, 2018–2021. *Plos one*, 17(12), e0279467.
- Fatiregun, A. A., Isere, E., Dosumu, M., Agunbiade, O., & Onyibe, R. (2019). Lassa fever awareness and knowledge among community residents in Ondo State, Nigeria. *Journal of community medicine and primary health care*, 31(2), 26-35.
- Gompf, S.G. & Davis, C.P. (2021) Lassa fever facts. MedicineNet, Incorporate. https://www.medicinenet.com/lassa_fever/article.htm
- Nigeria Centre for Disease Control (NCDC) (2018). Situation report: 2018 Lassa fever outbreak in Nigeria. [cited Aug 13]. Available from [:https://www.ncdc.gov.ng](https://www.ncdc.gov.ng) [Google Scholar]
- Nyenke, C., Konne, F., & Ikpeama, R. (2022). Updates on Lassa Fever in Nigeria. *Healthcare Issues*, 1(1 (July-December)), 1-8.
- Izah, S. C., Ovuru, K. F., & Ogwu, M. C. (2022). Lassa fever in Nigeria: Social and Ecological Risk Factors Exacerbating Transmission and Sustainable Management Strategies. *Internatinal Journal of Tropical Dieases*, 5, 065.
- Kofman, A., Choi, M.J. & Rollin, P.E. (2019) Lassa fever in travelers from West Africa, 1969–2016. *Emerging Infectious Diseases*. 25(2):245–8



- Ossai, E. N., Onwe, O. E., Okeagu, N. P., Ugwuoru, A. L., Eze, T. K., & Nwede, A. S. (2020). Knowledge and preventive practices against Lassa fever among heads of households in Abakaliki metropolis, Southeast Nigeria: A cross-sectional study. *Proceedings of Singapore Healthcare*, 29(2), 73-80.
- Overbosch, F., de Boer, M., Veldkamp, K. E., Ellerbroek, P., Bleeker-Rovers, C. P., Goorhuis, B., ... & van Dissel, J. (2020). Public health response to two imported Epidemiologically related cases of Lassa fever in the Netherlands(ex Sierra Leone) November2019. *Eurosurveillance*, 25(15), 2000265.
- Wogu, J. O. (2018). Mass media awareness campaign and the prevention of the spread of Lassa fever in the rural communities of Ebonyi State, Nigeria: Impact evaluation. *Journal of public health in Africa*, 9(3).

Appendix 1: Incidence of Lassa fever in Ondo State from 2018 to 2022

YEAR	TOTAL ADMISSION	TOTAL DISCHARGED F (%)	CONFIRMED F (%)	SUSPECT F (%)	DEATH F (%)
2018	265	109(41.1)	122(46.0)	143(54.0)	12(4.5)
2019	309	208(67.3)	253(81.9)	56(18.1)	33(10.7)
2020	351	279(79.5)	328(93.4)	23(6.6)	47(13.4)
2021	139	98(27.9)	108(30.7)	31(8.8)	24(6.8)