CLINICAL MANAGEMENT OF LASSA FEVER DISEASE

BY
Nnennaya A. Ajayi
Alex Ekwueme Federal University Teaching Hospital
Abakaliki, Ebonyi State, Nigeria
25/10/22

Outline

- Introduction
- Clinical recognition of lassa fever disease
- Approach to patient management
- Initial Management
- Notifications: Hospital Community Health Department, LGA DSNO, SMoH, NCDC, Supporting partners (where present)
- Drug treatment
- Management of Complications
- Mental Health support services
- Discharge and follow up
- References

Introduction

- Lassa fever is an acute viral haemorrhagic illness of 2-21 days duration that occurs in West Africa.
- The Lassa virus is transmitted to humans via contact with food or household items contaminated with rodent urine or faeces.
- Person-to-person infections and laboratory transmission can also occur, particularly in hospitals lacking adequate infection prevention and control measures.
- Lassa fever is known to be endemic in Benin, Ghana, Guinea, Liberia, Mali, Sierra Leone, and Nigeria, but probably exists in other West African countries as well.
- Early supportive care with rehydration and symptomatic treatment improves survival.

Clinical Recognition

- **Suspect case:** A patient presenting with fever(≥38 oC) of more than 48 hours and less than 3 weeks duration despite treatment for common infections in the environment or neonates with maternal Lassa fever.
- **Suspicion is increased** by the presence of some features like sore throat, red eyes, back pain, diarrhoea, abdominal pain, facial oedema, bleeding, hearing loss, spontaneous abortions or contact with a person known or suspected to have Lassa fever.
- **Confirmed case:** Suspected case with a positive Real Time Lassa virus pcr result (or positive IgM serology, virus antigen capture or virus culture).

Approach to the patient

- Isolate patient immediately to a dedicated room (Observation Bay/Holding Area)
- Inform the responsible clinician
- Separate ‘wet’ from ‘dry’ patients as much as is practicable
- Using appropriate PPE collect samples to confirm the diagnosis and assess disease severity. These include
- Lassa virus pcr
- Kidney function tests
- Full blood count and clotting profile
- Urinalysis
- Liver function test Random blood sugar
- Malaria parasite
- Pregnancy test for women of child bearing age

Initial management

- Rehydration/ provision of calories
- Monitor vital signs every 4 hours (Pulse Rate, Blood Pressure, Respiratory Rate, Temperature) . Also monitor O2 saturation.
- Antipyretics, Antimalarials/Antibiotics as needed
- O2 , anticonvulsants, antiemetics , antihypertensives, blood transfusion as needed
- Monitor Urinary output
- Transfer patient to treatment ward if laboratory test confirms the diagnosis
- Decontaminate patient and transfer to the routine medical care ward if the diagnosis is not confirmed.
- The impression of the clinician is key here

Notifications

- Hospital community Health Department for contact tracing within the Hospital and liaising with the LGA DSNO
- State epidemiologist
- NCDC
- Supporting partners

Categorization

Lassa fever is said to be severe when any of the following complications are present

- Acute kidney injury (AKI): Increased serum creatinine > 0.3 mg/dl (or > 26.5 mmol/l within 48 hours or reduced urine output (<0.5ml/kg/hr for 6hrs), or no urine for at least 6 hrs
- Severe central nervous system features (seizures, restlessness, confusion and coma)
- Severe Bleeding
- Respiratory distress
- Severe Anaemia requiring blood transfusion
- Sepsis/ hypovolemic Shock

Mild Lassa fever: A confirmed case without any of the signs and symptoms listed above.

Further tests for severe lassa fever

This depends on the features present

- Quantitative PCR (For monitoring)
- EEG for unconscious patient v. ECG for patients with suspected pericarditis
- ICP monitoring for unconscious patients
- Central Venous Pressure (CVP) monitoring for those with shock or other forms of cardiovascular instability
- Radiological test depending on the clinical presentation (e.g., Abdominal Ultrasound scan if abdominal tenderness is present, CT or MRI if encephalopathy, Chest X-ray if in respiratory distress)
- Other tests based on clinical suspicion: Blood Culture, Prothrombin time, Blood Gases, Serum calcium.

Drug treatment of Lassa fever

The drug of choice for the treatment of Lassa fever is intravenous Ribavirin administered over a period of 10 days as seen in the table below. Outcome is more favorable if treatment is commenced within six days of onset of symptoms.

The period may be extended if the response is not satisfactory.

Adults including non-pregnant adults (McCormick regimen)

Adults including non-pregnant women (McCormick regimen)

Period	Dose	Frequency
Loading Dose	33mg/kg (maximum dose of 2.64 g)	Stat
Day 1-4	16mg/kg (maximum dose of 1.28 g)	6 hourly
Day 5-10	8mg/kg (maximum dose of 0.64g)	8 hourly

Adults including non-pregnant adults (Irrua regimen)		
Period	Dose	Frequency
Loading Dose	100mg/kg (maximum of 7g)	In 2 divided doses: 2/3 given stat & 1/3 given 8 hours later
Day 2-7	25mg/kg	Daily (single dose)
Day 8-10	12.5 mg/kg	Daily (single dose)

ISTH Regimen for Pregnant women (Modified McCormick regimen)		
Period	Dose	Frequency
Loading Dose (Day 1)	100mg/kg	In 2 divided doses. 2/3rd of loading dose given stat and after 8 hours, remaining 1/3rd is given
Day 2-5	16mg/kg	6 hourly
Day 6-10	8mg/kg	8 hourly

Drug treatment of Lassa fever in children	McCormick Regimen	
Period	Dose	Frequency
Loading Dose	33mg/kg (maximum dose of 2.64g)	Stat. The next dose is given 6 hours later irrespective of time of presentation
Day 1-4	16mg/kg (maximum dose of 1.28g)	6 hourly(for 4 days)
Day 5-10	8mg/kg (maximum dose of 0.64g)	8 hourly (for 6 days)

Monitoring Investigations

- Serum E/ U/ Creatinine every 5 days or as required by the managing physician
- PCV/Haemoglobin every 5 days or as required by the managing physicians
- Viral load every 5 days to monitor response to therapy
- Monitoring investigations must be carried out daily or not later than every 48hours in severely ill patients

Supportive Care

Support needed is dependent on the complications identified and may include any of the following:

- Fluid Support
- Cardiovascular Support
- Haematologic Support
- Renal Support
- Respiratory Support
- Support g. CNS Support
- Nutritional Support
- Neonatal Support
- Psychosocial Support
- If signs of severe disease are seen at a lower facility of care, patient must be referred to a tertiary site or treatment centre

Management of complications

Complications of Lassa fever

- Acute kidney injury (AKI)
- Severe dehydration (from vomiting or diarrhoea)
- Sepsis/septic shock
- Encephalopathy
- Acute Respiratory Failure
- Severe Bleeding/Anaemia

Discharge criteria

- RT- PCR testing carried out at day 10 is negative and patients is afebrile.
- In centers without facility for RT-PCR, discharge patients in the absence of signs and symptoms after 10 days of treatment
- For symptomatic patients with negative RT-PCR discharge into appropriate ward for subsequent management
- RT-PCR is positive after treatment but there are no symptoms suggestive of Lassa Fever for 72 hours post treatment (patient should however be followed up and oral ribavirin must be given at 500 mg 6 hourly for seven days)
- If patient is still RT-PCR positive at day 10 and still symptomatic, treatment can be extended for 5-10 days.

Follow up

- Patients should be followed up weekly for the first 3 weeks and monthly for the next 3 months.
- After discharge, patient should be evaluated consistently for hearing loss and other complications
- Nursing mothers should not commence breastfeeding until breast milk tests negative.
- Supportive nutrition is encouraged for babies whose mother's breast milk tests positive .
- Semen should be tested after 3 months and patient advised to avoid unprotected sexual intercourse during this period.
- If semen remains positive, patient should be counseled on the use of condom

Resources

- WHO, 2017. Lassa fever key: facts. Internet
- NCDC, 2018. National Guideline for Lassa fever case management
- Ajayi et al, 2014. Lassa fever- full recovery without Ribavirin treatment: A case report.
- Ajayi et al, 2013. Containing a lassa fever outbreak in a resource limited setting. International journal of Infectious Diseases.

THANKS FOR LISTENENING