Kerala HEALTH

Dr Rajan Khobragade IAS
Principal Secretary

DO 1/Prl Secretary H&FW

7th June 2019

Dear Doctor,

Sub: Nipah Virus infection control – Guidelines – Reg

Enclosed here with the Nipah virus infection control guidelines for your information. You may send across the guidelines to all concerned immediately.

Good wishes,

Sincerely,

Rajan Khobragade

DHS / DME

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Nipah Virus infection control- Guidelines

(JUNE 2019)

1. EPIDEMIOLOGY

- **Agent: Nipah Virus (**NiV) is a highly pathogenic paramyxovirus
- **Natural Reservoir:** Large fruit bats of *Pteropus* genus are the natural reservoir of NiV. Presumably, pig may become infected after consumption of partially bat eaten fruits that dropped in pigsty.
- **Seasonality** was strongly implicated in NiV outbreaks in Bangladesh and India. All of the outbreaks occurred during the months of December to May.
- **Incubation period:** varies from 4-14 days.
- **Mode of Transmission:** Transmission of Nipah virus to humans may occur after direct contact with infected bats, infected pigs, or from other Nipah virus infected people. Another route of transmission of Nipah virus has been identified from drinking raw date palm sap contaminated with NiV.

2. CASE DEFINITIONS

a. Suspect Nipah Case

Person from a area/ locality affected by a Nipah virus disease outbreak who has:

- Acute Fever with new onset of altered mental status or seizure and/or
- Acute Fever with severe headache and/or
- Acute Fever with Cough or shortness of breath

b. **Probable Nipah case**

- Suspect case-patient/s who resided in the same village where suspect/confirmed case of NIPAH were living during the outbreak period and who died before complete diagnostic specimens could be collected

OR

- Suspect case-patients who came in direct contact with confirmed case-patients in a hospital setting during the outbreak period and who died before complete diagnostic specimens could be collected.

c. **Confirmed Nipah Case**

Suspected case who has laboratory confirmation of Nipah virus infection either by:

- Nipah virus RNA identified by PCR from throat swab, urine, serum or cerebrospinal fluid (optional).
- Isolation of Nipah virus from throat swab, urine, serum or cerebrospinal fluid.

d. **Definition of a Contact:**

A Close contact is defined as a patient or a person who came in contact with a Nipah case (confirmed or probable cases) in at least one of the following ways.

- Was admitted simultaneously in a hospital ward/ shared room with a suspect/confirmed case of Nipah virus disease
- Has had direct close contact with the suspect/confirmed case of Nipah virus disease during the illness including during transportation.
- Has had direct close contact with the (deceased) suspect/confirmed case of Nipah virus disease at a funeral or during burial preparation rituals
- Has touched the blood or body fluids (saliva, urine, vomitus etc.) of a suspect/confirmed case of Nipah virus disease during their illness

- Has touched the clothes or linens of a suspect/confirmed case of Nipah virus disease

These contacts need to be followed up for appearance of symptoms of NiV for the longest incubation period (21 days).

3. CLINICAL FEATURES

- Fever, Altered mental status, Severe fatigue, Headache, Respiratory distress, Cough, Vomiting, Muscle pain, Convulsion, Diarrhoea
- In infected people, Nipah virus causes severe illness characterized by inflammation of the brain (encephalitis) or respiratory diseases.
- In general, the case–fatality rate is estimated at 40–75%; however, this rate can vary by outbreak and can be upto 100%.

4. LABORATORY DIAGNOSIS

Laboratory confirmation of a suspect/probable case can be made during the acute and convalescent phases of the disease by using a combination of tests. The samples have to be sent to NIV Pune, NIV field station, Alappuzha

Sample Collection and Transport Guidelines:

Universal, standard droplet and bio-containment precautions should be followed during contact with excretions, secretions and body fluids of suspected patient for Nipah virus. Adequate bio-safety precautions should be adopted during collection/transport/ storage/ processing of suspected sample.

Sample collection:

The samples should be collected as early as possible (preferably within 4 days) with all bio-safety precautions and accompanied with detailed history of patients on the proforma which can be obtained from the testing laboratory

Sample collection should be done only AFTER ADMISSION in an appropriately secure isolation facility, and ensuring that the staff member doing the collection is using adequate PPE

During sample collection wear complete disposable Personal Protective Equipments (N 95 mask, double surgical gloves, gowns, goggles foot cover, etc). Wash hands with soap and water atleast for 30 seconds and then clean hand using 1-2 ml alcohol based hand sanitizer before and after collection of samples.

The recommended samples are

- Throat swab in viral transport medium
- Urine 5 ml in universal sterile container
- Blood in red vacutainer (5ml)
- CSF (1-2 ml) in sterile container

Transportation and Storage of samples:

- Samples should be safely packed in triple container packing and should be transported securely under cold chain (2-8°C) to the testing laboratory with prior intimation.
- Sample containing vials, tightly closed, should be kept in good quality zip-lock bags wrapped with sufficient absorbent cotton padding so that inside material should not come out of bag if it leaks. The plastic bag should be kept in another

Zip-lock bag similarly, which should be sealed with adhesive tape. This carrier should be placed in a hard container sealed with impermeable tape or plaster and placed in thermocol box /vaccine carrier containing ice packs. The case sheets with complete information should be placed in plastic bag and should be pasted **outside the container**.

- Samples should be transported at 2-8°C to the have to be sent to NIV Pune, NIV field station, Alappuzha

MANAGEMENT

- **All patients having fever must report to Fever triagefrom where they will be sent to the isolation facility**
- **Proper infection control practices must be followed up.**

Isolation

Who should be kept in isolation

- History of close contact with confirmed case presenting withfever or any symptoms suggestive of Nipah infection (*vide* clinical features)
- Health care provider who has come in contact with the patientwith fever / severe headache/altered sensorium/breathlessness/cough
- Patients with high clinical suspicion – Encephalitis/ARDS/Myocarditis

Isolation facility

- Enter the details of all HCWs entering the isolation facility
- Only HCWs trained in infection control practices should be posted in the isolation facility.
- Infection control practices should be strictly adhered
- Proper instructionsshould be followed while entering the room

- Single room with toilet
- Separate equipments (BP apparatus, Stethoscope, Thermometer, Pulse oximeter) for each room and use only disposable consumables

Precautions

- Ensure personal safety. Wear apron and gloves as appropriate.
- Strict adherence to proper Triaging
- General measures – ABCDE approach (Airway, Breathing, Circulation, Disability, Exposure)
- Intense supportive care

Drug Treatment

No approveddrugsso far . The two options are

1.Monoclonal antibody m102.4

2. Tab Ribavirin

1.Monoclonal antibody m102.4

The indications and guidelines refer the guidelines for use of m102.4

2.Ribavarin

Adult: Dosage: 2 g stat and then 1 g 6 hourly Day 1 to 6 days and

500 mg 6 hourly for 7-10 days

Children: 30mg/kg stat

15mg/kg 6hrly Day 1 to 4

7.5 mg/Kg 6hrly from Day 5-7 days

STANDARD CARE FOR COMPLICATIONS

Standard care must be provided as in any infection presenting with Encephalitis, ARDS, Myocarditis.

Basic principles are outlined below.

a. Standard care for encephalitis

Patients with increased intracranial pressure

- Management of fever, pain, control of cough and other strains.
- Prevention of seizures
- Control systemic hypertension
- Elevate head
- Furosemide 20mg IV and / or mannitol 1-2 mg/kg IV over 30-60 minutes – provided circulatoryvolume is protected
- Hyperventilation – PaCO2-30mmhg

Seizures

- Lorazepam 4 mg IV or
- Phenytoin 100mg IV q6-8h or
- Fosphenytoin 150PE q8h IV or
- Levetiracetam 500mg q8-12h IV or

b. Standard care for myocarditis

Supportive therapy for symptoms of acute heart failure with use of diuretics, nitroprusside, ACE inhibitors.

- Inotropes- Dobutamine- 2–5 micrograms/kg/ min, titrated up to 20 micrograms/kg/min- Inotrope and potential vasodilator; lowers blood pressure; give as individual agent as long as systolic blood pressure (SBP) ≥90. Can use with dopamine.
- Dopamine-3–5 micrograms/kg/ min, titrated up to 20–50 micrograms/kg/ min as needed-Inotrope and vasoconstrictor; increases left ventricular end-diastolic pressure and causes tachycardia. Can beused with dobutamine.
- Norepinephrine-2 micrograms/min, titrate to response-Vasoconstrictor and inotrope; preferred as a single agent over dobutamine if SBP <70. Can use combined with dobutamine.

c. Standard of care for ARDS

- For mild and moderate ARDS, non invasive ventilation stands as the first-line approach.
- In Nipah ARDS, because intubation and mechanical ventilation may be associated with an increased incidence of complications, such as barotrauma and nosocomial pneumonia, alternatives to mechanical ventilation such as a high-flow nasal cannula or noninvasive positive-pressure ventilation (NIPPV) may be beneficial in patients with ARDS.
- Patients who have a diminished level of consciousness, vomiting, upper GI bleed, or other conditions that increase aspiration risk are not candidates for NIPPV.
- Other relative contraindications include hemodynamic instability, agitation, and inability to obtain good mask fit
- Severe ARDS is often associated with refractory hypoxemia, and early identification and treatment of hypoxemia is mandatory.
- For mechanical ventilation specific settings are recommended: limitation of tidal volume (6 ml/kg predicted body weight), adequate high PEEP (>12 cmH2O), a

recruitment manoeuvre in special situations, and a 'balanced' respiratory rate (20-30/min).

Criteria for discharge of confirmed case

- Clinically stable
- Nipah RT-PCR from all three samples (Throat swab, Urine and blood)reported negative on two occasions at least 5 days apart.
- To be decided by the treating clinician and confirmed by the Medical board

Follow up

The discharged patient should remain in isolation at their residence for 4 weeks after the discharge.

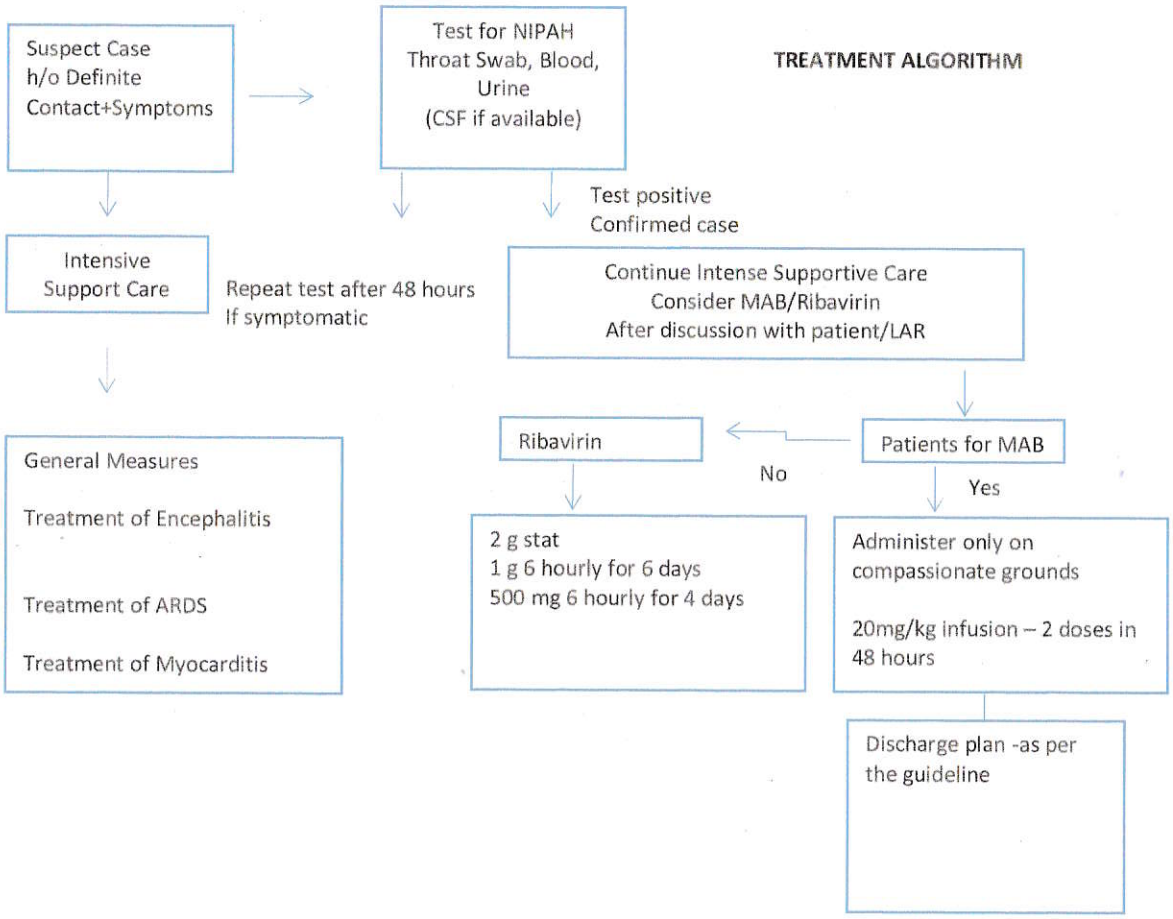
Patient is advised follow up on 28days, 56 dys and 90 days of discahrge

Algorithm is attached as an ANNEXURE.

This guidelines have inputs from Dr Chandni R, Dr.Vikram Holla, Dr Animesh Ray, Dr Jacob, Dr Suma T K and Dr Tarun.

Dr Rajan Khobragade

Principal Secretary H&FW


Suspect Case
h/o Definite
Contact+Symptoms
Test for NIPAH
Throat Swab, Blood,
Urine
(CSF if available)
TREATMENT ALGORITHM
Test positive
Confirmed case
Intensive
Support Care
Repeat test after 48 hours
If symptomatic
Continue Intense Supportive Care
Consider MAB/Ribavirin
After discussion with patient/LAR
General Measures
Treatment of Encephalitis
Treatment of ARDS
Treatment of Myocarditis
Ribavirin
No
Patients for MAB
Yes
2 g stat
1 g 6 hourly for 6 days
500 mg 6 hourly for 4 days
Administer only on
compassionate grounds
20mg/kg infusion – 2 doses in
48 hours
Discharge plan -as per
the guideline