

EDITORIAL

Ebola Virus Disease : Are We Prepared?

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Emerging and re-emerging viral diseases cause epidemics and as many of these have pandemic potential; they pose a threat to global health security. The notable ones in 2014 have been Middle East Respiratory Syndrome (MERS) due to Corona Virus (MERS-CoV) and Ebola Virus Disease (EVD). EVD continues to evolve since February 2014 in alarming ways, with no immediate end in sight. Guinea, Liberia, Nigeria, and Sierra Leone are affected. The Ministries of Health of Guinea and Liberia and the World Health Organization (WHO) have reported an outbreak of Ebola hemorrhagic fever in several Guinean and Liberian districts. The total cases have been 1975 with 1069 deaths till August 14, 2014.¹

Ebola Virus Disease first appeared in 1976 in Africa. Disease takes its name from Ebola River situated in the village where outbreak occurred. Ebola virus disease (EVD) outbreaks occur primarily in remote villages in Central and West Africa near rainforests.² There are five sub species of Ebola virus four of which can cause human disease. It is a severe often fatal disease in humans.

Ebola is a zoonotic virus. The natural reservoir host of Ebola viruses and the manner, in which transmission of the virus to humans occurs, remain unknown. Symptoms may appear anywhere from 2 to 21 days after exposure to Ebola virus though 8-10 days is most common. Human to human transmission of the Ebola virus is through direct or indirect contact with blood and body fluids. Contact tracing is very important and is being done to the tune of 94%-98% as per WHO.¹ Health care workers have frequently been infected while treating patients with Ebola virus disease.

Clinical Features include sudden onset of fever, intense weakness, muscle pain, headache and sore throat followed by vomiting, diarrhoea, rash, impaired kidney and liver function and in some

cases internal and external bleeding. The high mortality of 90% is attributed to underdeveloped immune response to the virus at the time of death.

Laboratory findings include leucopenia and elevated liver enzymes. It is possible to diagnose Ebola virus definitely by antigen capture ELISA / RT-PCR assays, electron microscopy and virus isolation by cell culture. There is no vaccine yet available for clinical use. There is no specific treatment and patients need to be given intensive supportive care.

Isolation of EVD patients from contact with unprotected persons can help in preventing its spread. Standard, contact and droplet precautions like hand hygiene, respiratory hygiene, use of gloves and personal protective equipment, safe injection and safe burial practices have been advocated to prevent spread of virus. A medical response unit which was set up in Liberia for EVD has been seriously compromised with the infection of its American director and an American aid worker. Increasingly there are reports of infection in close contacts of patients.

Air, sea and land transport networks continue to expand in reach, speed of travel and volume of passengers and goods carried. Pathogens and their vectors can now move further, faster and in greater numbers than ever before. Thus each outbreak, including EVD poses a threat of crossing continents and becoming pandemic.

The problems with any pandemic are as follows³

- Rapid Worldwide Spread: When a viral pandemic emerges, it is expected to spread around the world. e.g. pandemic flu, making the entire world population susceptible.
- The health care facilities get over

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loaded as the infected population requires some form of medical care.

- There is high morbidity and mortality rate disrupting economy and society.

Recognizing the problem, the WHO's Twelfth General Programme of Work sets the reduction of "mortality, morbidity and societal disruption resulting from epidemics... through prevention, preparedness, response and recovery activities" as one its five strategic imperatives.⁴

India needs to walk an extra mile as far as "preparedness, response and recovery activities" are concerned. The estimated 47,000 Indians in the affected countries are being contacted by area diplomatic missions and supplied with educational material about the disease. From 9 August, passengers coming from Ebola-affected countries will have to complete a form before landing; the form has a checklist for symptoms and asks travellers from West Africa for information about places visited, length of stay and other important information.

The problems to deal with an epidemic and pandemic in India are many and varied and need no mention. However, only when we are prepared to detect or respond rapidly to threats we can save lives and safeguard communities. Following are the principles of handling these catastrophes.⁵⁻⁷

- Strong and efficient response to epidemic prone diseases and other public health emergencies of national and international concern is the need of the hour.
- Socio-economic, demographic, environmental and ecological factors which facilitate the occurrence and spread of these diseases in India need to be considered and tackled.
- Infrastructure for transport, triage and isolation of patients need to be provided. Provision for treatment to the patients and implementation of infection prevention practices including environmental cleaning procedures as per national and international guidelines laid by NCDC, India; WHO and CDC, USA need to be followed.
- Unlicensed drugs and vaccines may need to be used as per WHO recommendation.
- Laboratory facilities for diagnosis and sample collection and transport guidelines need to be identified and followed.
- Efficient surveillance and reporting system is useful for monitoring the status
- Coordination with public transport facilities like airport authorities and railway authorities for containing the spread of the diseases and upgrading on-site triage area and health care facility are required.

- Information and training to public health officials, health care facilities and community through mass communication systems need to be updated regularly.

Suggested Hospital Protocol to suspect EVD and further management of the patient as per guidelines given by National Center for Disease Control, New Delhi.^{7,8}

- All the patients coming to hospital should be asked history of travel to the affected countries like Nigeria, Guinea, Liberia Sierra Leone or contact with infected patient in past one month at entry point of the health care facility
- Entry of these patients with history of travel and symptoms like EVD to be restricted and patient should be triaged in a single room while symptoms are monitored.
- Vigilance in the emergency department, inpatient and intensive care is strongly recommended.
- As the transmission of disease is through contact of blood and body fluid including sweat and saliva and possibly droplet transmission; standard, contact and droplet isolation should be applied.
- Staff should be adequately trained for receiving and managing the patient suspected to have EVD as health care workers are known to acquire the disease while treating the patients.
- As per guidelines from regional IDSP/ CSU, the patients can be shifted to a designated health care facility of the city and the samples can be sent to the National Institute of Virology, Pune.
- Appropriate regional and state authorities should be informed.e.g. NCDC
- Environmental cleaning should be done as protocol with 1% Sodium hypochlorite. Linen infected with patients blood or body fluid should be incinerated.

Similar alerts have been issued by International societies in Critical Care.

Rapid globalization has brought new influences on patterns of human health including threats from infectious diseases. An emerging infectious disease in one part of the world can quickly affect the rest of the world. There is an impending threat of EVD to cross borders of West Africa. As there is high morbidity and mortality, it is indeed a challenge for health care professionals who need to be updated constantly on the most recent developments.

In a resource limited country like ours, preparedness beyond planning, with advance protocols, training and the commitment of public health experts, pharmaceutical companies, medical fraternity and community can all help to deal if faced with a pandemic situation.

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