

Editorial

Ebola

The massive outbreak of Ebola virus disease in the West African countries including Sierra Leone, Liberia, Senegal and Nigeria in March 2014 and then within a short time spreading like bushfire to Mali, Spain, Congo and Unites States made the whole world vulnerable. By October 2014 WHO reported a total of 4881 deaths and a list of 9964 suspected cases. The Health Care Systems of all countries of the world were put on red alert including Bangladesh, when in august 8th 2014 the Director General of the World Health Organization (WHO) declared the "Ebola outbreak- a public Health Emergency of International concern". Bangladesh no doubt is in dire need to protect its population from yet another epidemic of this magnitude. In this article, we intend to provide basic informations about Ebola Virus that every doctor should know and increase awareness amongst general population.

Ebola is named after the Ebola river, a tributary of the river Congo near a village of Zaire where it was first described. It belongs to human. RNA virus, initially thought to be a new strain of Marburg virus of Filoform family. (Table-1) In 2010, this virus associated with hemorrhagic manifestation renamed as Ebola virus. It is also known as Ebola Hemorrhagic Fever or simply Ebola

Table-I Ebola Virus

Morphology		Approximate Size	Family	Genera	Species
Symmetry	Envelope				
Pleomorphic Zoo notic Helical capsid Negative Sense Single Stranded RNA genome	Linear + enveloped	790 -1400 nm long 80 nm in diameter	Filoviridae	Cueva virus Marburg virus Ebovirus	Zaire

Ebola virus is one of the four eboviruses known to cause diseases in humans. As far as the history is concerned, the outbreak first appeared in 1976 simultaneously in two areas- Nzara in Sudan and yambuku in Zaire (Congo). About 25 outbreaks occurred so far in Central Africa including the first one. But the current one first

cases identified in March 2014 is the largest and most complex Ebola outbreak since its discovery.

Reservoir

Now it has been possible to identify reservoirs namely Fruit bats / Megabats, Chimpanzees, Gorillas, Monkeys, Forest antelope, porcupines etc. Antibodies against Ebola Zaire and Reston viruses have been found in fruitbats in Bangladesh, thus identifying potential virus hosts and signs of the filoviruses in Asia.

Risk group of people

For most of the general people, the risk of getting Ebola is low. The risk increases if anyone -

- Travel to Africa, Conduct animal research, Provide medical or personal care to the affected people, Medical personnel if they do not use protective measure during treatment of Ebola affected patient, Prepare people for burial, Share needles with Ebola patients.

Transmission

a) Animal to human

Human body will get affected if a man has close contact with wild animal's blood, secretion, organ, meat or other bodily fluids.

b) Human to human transmission

Direct contact through broken skin or mucous membrane with infected people's,-

- Blood, Secretions-sweat, urine, saliva, mucous, breast milk, semen, nasal fluid, feces, droplets Organs, Body fluids, Surface & materials (beddings, clothings) contaminated with infected fluids, Direct contact with Ebola affected dead bodies.

Period of infectivity

People remain infectious as long as their blood & body fluids including semen and breast milk contain the virus.

N:B: Ebola can not be transmitted via air, water or food. Asymptomatic people can't spread it either. Only symptomatic patient can transmit infection.

Pathophysiology

Entry of Ebola virus to human body. It infects the monocyte (at first), endothelial cell (after 3 days) & replicate there. Interruption of protein synthesis of Ebola infected cell & cell death occurs. Synthesis of Ebola virus glycoprotein (GP), GP inhibits both the signaling to neutrophils & activation of interferon. Host immune defense falls, Virus is carried along with WBC to the entire body specially lymph nodes, liver, lung, spleen, Progressive cell damage & viral particles trigger chemical signals (TNF-a, IL-6, IL-8). Fever & infection of endothelial cells. Decrease platelet count & endothelial cell toxicity. Decrease blood vessel integrity & hemorrhage. Hypovolumic shock.

Ebola symptoms including aches, chills, fever and vomiting, only some patients experience haemorrhage.

Why has it become epidemic in 2014:

- Extreme poverty, Very weak health system, Lacking human & infrastructural resources, Limited access to the soap & running water, Reliance on traditional medicine, Physical contact with dead bodies as a part of dead custom.

Differential diagnosis

They may confused with other diseases like:

Dengue fever, Malaria, Typhoid fever, Meningitis, Cholera, Kala-azar etc. The outcome of the Ebola infections may be Multiple organ failure, Severe bleeding, Jaundice, Seizure, Coma, shock In a suspected person, if shows identical symptoms associated with history of contact with wild animal (during travel & work) will be diagnosed as follows :

Diagnosis

- ❖ Specimen: blood after 3 days of symptoms expression.
- ELISA, PCR, Virus isolation by cell culture, Electron microscopy.

Management

Still there is no licensed treatment. Only we can do-

Supportive care: rehydration with oral or IV fluid.

Symptomatic care: improves survival.

Intensive supportive care: to severe ill patient.

N:B: Recently Recombinant Human Monoclonal Antibody preparation is trying to make effective in treatment of Ebola.

Vaccination

No licenced vaccine is available. But National Microbiology Laboratory, Canada has claimed to invent an antiviral named VSV-Ebo which has positive effect over affected animal. WHO has decided to put a trial over human being of it.

Prognosis

The risk of death among the affected persons 50-90%. If anyone survives after a prolonged period, he may faces problem like below-

- Orchids, Joint pain, Muscle pain, Hair loss, Eye problems, Blindness

Prevention & Control

Good outbreak control relies on applying a package of interventions -

- Case management, Surveillance, Quarantine, Contact tracing, Protective measure for infection control, Good laboratory service & Intensive care, Personal hygiene, Safe burial Safe social mobilization, International co-operation.

Protective measures for medical person

About 240 medical persons have already met death. So during handling Ebola patient we must take -

- ❖ Surgical cap, Goggles, Medical mask, Respirator, Surgical scrub suits, Double gloves Boots, Water proof apron.

Bangladesh (in point of view of Ebola)

Recently a threatening rumour has been telecasted on air that 2 Bangladeshis from Jessore are Ebola affected & 6 from other places are suspected. So Bangladesh Govt. has taken some initiatives-

- a) Medical teams are appointed to international water, land and air port.
- b) A committee under health secretary is running to monitor preventive measure throughout the country.
- c) Ebola patient will be treated in separate hospital.

Why Ebola is so dangerous?

Pray to Almighty.

Ebola virus has spreaded deadly fear all over the world as -

- (i) It supresses the body immune system.
- (ii) There is no potential curative treatment & vaccine for this disease. Only symptomatic treatment is there.
- (iii) It is spreaded from man to man in life & death.
- (iv) The chance of death among affected person is 50-90%.
6 men may die within 10 affected individuals.

So learn Ebola

&

Stay alert,

Keep safe,

Live well &

Prof. (Dr.) Md. Zulfikar Ali

Editor in chief