IJARSCT
ISSN (Online) 2581-9429
International Journal of Advanced Research in Science, Communication and Technology (IJARSCT)
Volume 2, Issue 1, June 2022
Impact Factor: 6.252

An Overview of Ebola Virus Disease

Miss. Akshada S. Satpute[1] and Miss. Sushali P. Pawar[2]
Students, B.Pharmacy[1,2]
Samarth Institute of Pharmacy, Belhe, Pune

Abstract: *Ebola virus disease (EVD) is a life-threatening viral disease with a fatality rate ranging from around 30% to 90%. It is one of the world's most virulent diseases, previously known as Ebola haemorrhagic fever. This Ebola disease is severe, often fatal illness, with a case fatality rate of up to 90%. Ebola first appeared in 1976 in 2 simultaneous outbreaks in Nzara, Sudan and in Yambuku. Congo. EVD outbreaks occur primarily in remote village near the Ebola River. Signs and symptoms usually start with fever, sore throat, muscular pain and headaches, vomiting, diarrhoea and rash, along with reduced liver and kidney function, between two days and three weeks after contracting the virus. Some individuals start to bleed both internally and externally at this time. Outbreaks occurred in the Central Africa region, including Zaire, Sudan and Uganda. However, between March and October 2014, over 10 000 cases of EVD have been recorded in West Africa, such as in Guinea, Liberia, Sierra Leone, and Nigeria, and a few hospital or secondary infections of EVD have occurred in Spain and the United States of America..*

Keywords: Ebola virus Disease, Transmission, Prevention, Control

I. INTRODUCTION

It is one of the world's most virulent diseases, previously known as Ebola haemorrhagic fever. This Ebola disease is severe, often fatal illness, with a case fatality rate of up to 90%. Ebola first appeared in 1976 in 2 simultaneous outbreaks in Nzara, Sudan and in Yambuku. Congo. EVD outbreaks occur primarily in remote village near the Ebola River.
The viral hemorrhagic fever of humans and other primates caused by Ebola viruses is Ebola virus disease (EVD), also known as Ebola hemorrhagic fever (EHF) or simply Ebola. Signs and symptoms usually start with fever, sore throat, muscular pain and headaches, vomiting, diarrhoea and rash, along with reduced liver and kidney function, between two days and three weeks after contracting the virus. Some individuals start to bleed both internally and externally at this time.

1.1 Epidemiology

- The disease has a high risk of death, with an average of around 50 percent killing between 25 and 90 percent of those infected. This is also attributed to low blood pressure due to lack of fluid, which normally follows six to sixteen days after symptoms appear.
- The virus spreads by direct contact with body fluids such as; blood from infected humans or other species. Spread can also occur through contact with objects recently contaminated with bodily fluids. The airborne spread of the disease among primates including: humans, has not been recorded under either laboratory or natural conditions.
- Other diseases may be similar to EVD such as; malaria, cholera, typhoid fever, meningitis and other viral hemorrhagic fevers. To confirm the diagnosis, blood samples are examined for viral RNA, viral antibodies or for the virus itself. Ebola hemorrhagic fever mortality rates are high, ranging from 50 percent to 90 percent, with death typically resulting from shock instead of blood loss.

1.2 Agent/factor

Ebola virus contain single-strand, non-infectious RNA genomes. EVD is caused by Ebola Virus. It is an RNA virus of family Filoviridae and there are Species of Ebola virus named after their original site of outbreak:

1. Zaire Ebola virus
2. Sudan Ebola virus
3. Bundibugyo Ebola virus

IJARSCT
ISSN (Online) 2581-9429
International Journal of Advanced Research in Science, Communication and Technology (IJARSCT)
Volume 2, Issue 1, June 2022
Impact Factor: 6.252

4. Tai Forest Ebola virus
5. Reston Ebola virus

Zaire Ebola virus is the most virulent strain and it is implicated in the current epidemic.

(a) Reservoir of Infection:

- Bats, Plants, arthropods and birds.

(b) Source of Infection:

- The most infectious body fluids are blood, feces.
- Urine, semen and breast milk
- Saliva and tears.

1.3 Host Factor

Host factors are characteristics found in a person that may have an influence on their disease susceptibility. In recent studies, certain host factors have been identified as having a role in EBOV infection such as; cathepsin B, heat shock 70 kda protein 5, and STAT I

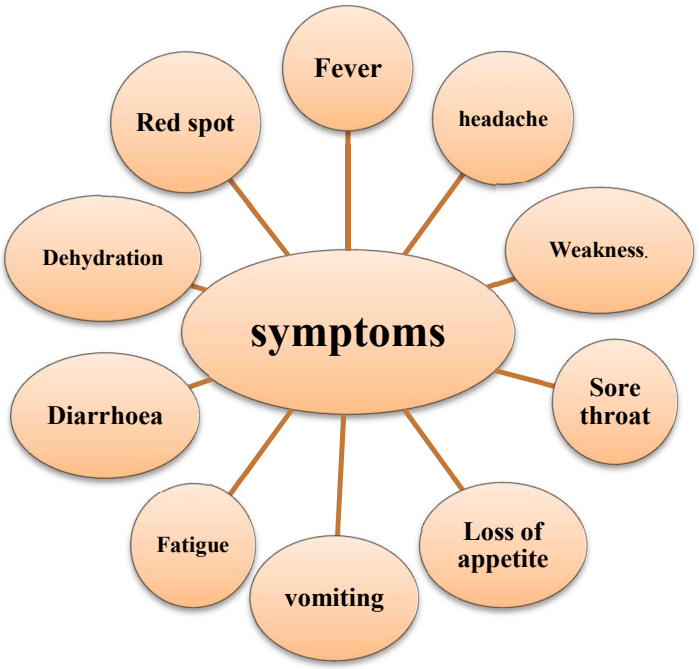
1.4 Environmental Factors

Studies have shown that low temperature and high humidity favors Ebola virus infection.

1.5 Incubation Period

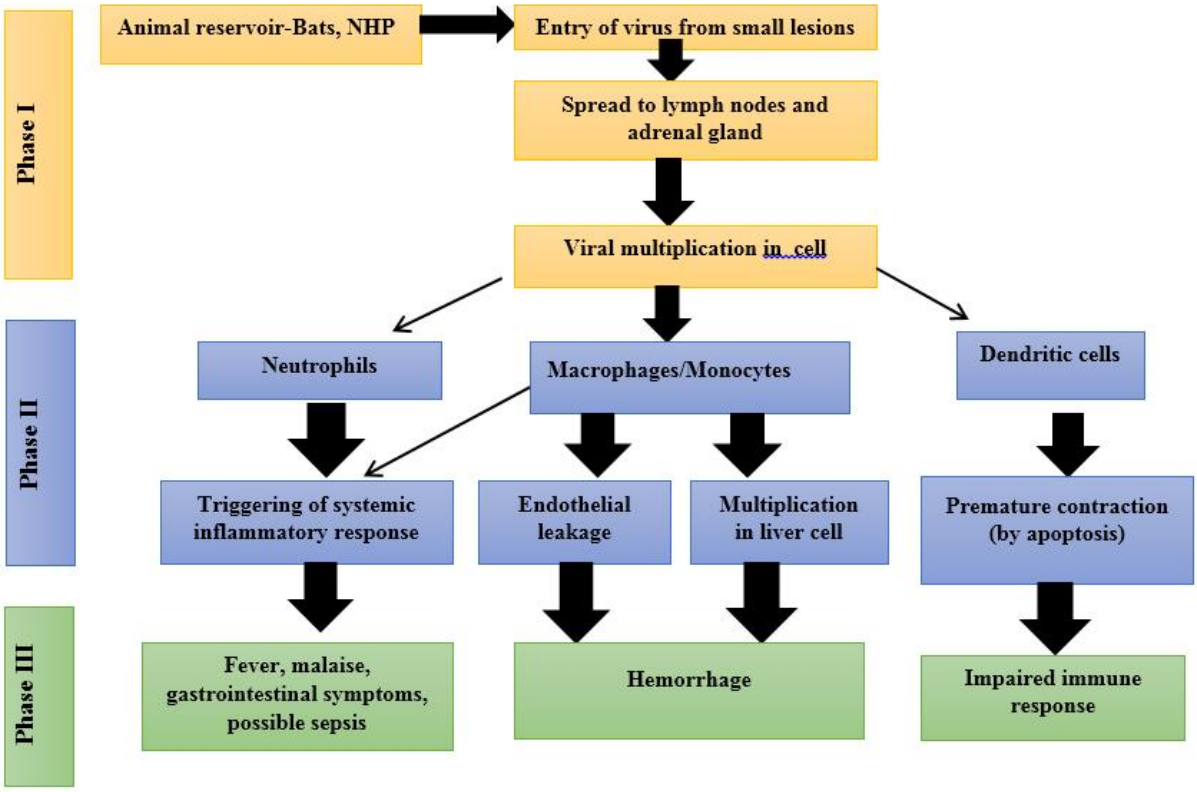
- The incubation period for Ebola is the period between an Ebola virus infection and the beginning of symptoms associated with the disease.
- Incubation period for Ebola is 2 to 21 days.

1.6 Symptoms

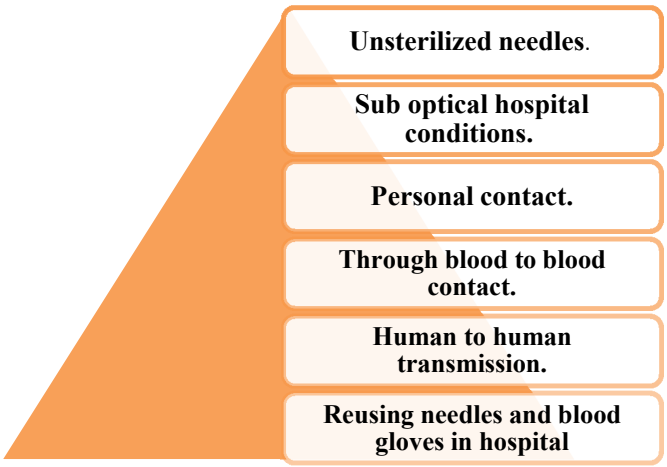


IJARSCT
ISSN (Online) 2581-9429
International Journal of Advanced Research in Science, Communication and Technology (IJARSCT)
Volume 2, Issue 1, June 2022
Impact Factor: 6.252

II. PATHOPHYSIOLOGY



Mode of Transmission



IJARSCT
ISSN (Online) 2581-9429
International Journal of Advanced Research in Science, Communication and Technology (IJARSCT)
Volume 2, Issue 1, June 2022
Impact Factor: 6.252

III. DIAGNOSIS

Antigen detection test	Kidney function test
Serum neutralization test	Electrolytes
RT-PCR Assay	WBC
Virus isolation by cell culture	Repeated platelet count
Haematocrit	Haemoglobin
ELISA	Liver function test

IV. TREATMENT

4.1 Current treatment for Ebola

Development of Ebola antiviral drug However, advances in research have developed four experimental drugs against Ebola virus disease, of which two of them have shown promising results. These drugs include **REGN-EB3, mAb114, remdesivir, and ZMapp**, all of which are a combination of monoclonal antibodies.

4.2 Supportive Treatment Only

Oxygen; help breathing
Antibiotics; Prevent 2' Bacterial Infection
Analgesic; Fever and Body ache
IVF; Maintain Fluid And Electrolyte Balance
Transfusion; Bleeding

V. VACCINES

The European medicines agency has granted a conditional marketing authorization to the rvsv-zebov vaccine in the European Union for active immunization of adults at risk of infection with Ebola. The food and drug administration has also approved the vaccine for the prevention of Ebola in adults. This vaccine is being used in the current outbreak in the democratic republic of Congo. A second vaccine (ad26zebov/mva-bn-filo, a 2-dose heterologous vaccine regimen) is also being used in the outbreak.

VI. PREVENTION AND CONTROL

- No particular treatment exists for Ebola virus disease.
- Treatment is mostly supportive and requires avoiding invasive procedures, balancing fluids and electrolytes to counter dehydration.
- Administration of anti-coagulants to prevent or control disseminated intramuscular coagulation early in the infection.
- Administration of pro-coagulants to control bleeding late in the infection.
- Maintaining levels of oxygen, treating discomfort and using drugs to treat secondary bacterial or fungal infections.
- Early care will increase the possibility of survival.
- Studies are ongoing on a variety of experimental therapies. .
- Avoid direct contact with people with signs and symptoms such as; persistent high fever, red eyes, vomiting and stomach pain.
- Stay away from bats, monkeys and animals that are dead.
- Avoid hand shaking.
- Wash your hands with water and soap.
- Washing hands frequently.
- Avoid eating wild animal meat.
- Follow infection control procedures.
- Vaccination.

IJARSCT
ISSN (Online) 2581-9429
International Journal of Advanced Research in Science, Communication and Technology (IJARSCT)
Volume 2, Issue 1, June 2022
Impact Factor: 6.252

VII. CONCLUSION

Ebola virus Disease (EVD) has become a public health emergency of international concern. The World Health organization and centersof disease Control and prevention have developed guidace to educate and inform healthcare workers and travelers worldwide. The disease is not transmitted via airborne spread like influenza,but rather from person-to-person,or animal to person ,via direct contact with body fluids or bloods.It is crucial that emergency physicians be educated on disease prevention and how to generate a timely and accurate differential diagnosis that include exotic diseases in the appropriate patient population. There are Experimental therapies for treatment of EVD virus ; however the main therapy is supportive care.Finally,we urgently need strategies , Financial support , and political will to bring these developments to the population of endemic areas in equatorial Africa who are in primary need for intervention and for whom financial resource are scarce.

ACKNOWLEGDMENT

We thanks and Gratitude to Trustee of Samarth Rural Educational Institutes and team of Samarth Institute of pharmacy, Belhe, Pune , with their valuable guidance and support .

CONFLICT OF INTEREST

The author declared no conflict of interest.

REFERENCES

[1]. International research journal of pharmacy [2019]shubham kaushal,shalini sharma,HP,India.
[2]. D.Mavly,A.k.McElory,H.de Clerk, s.gunther, J .vangriensven.ebola virus diseases.lancet, 393,pp936-948
[3]. S Pattyn, GV Groen, W Jacob, P Piot, G Courteille. Isolation of Marburg-like virus from a case of haemorrhagic fever in Zaire. The Lancet. 1977;309(8011):573–74. [PubMed] [Google Scholar]
[4]. Ebola virus disease [Internet].Centres for Disease Control and Prevention [updated May 2015]. Available from: http://www.cdc.gov/vhf/ebola/outbreaks/history/chronology.html.
[5]. Klenk, H.-D. & Feldmann,H.(2004). Ebola and Marburg Viruses: Molecular and Cellular Biology. Wymondham: Horizon Bioscience.
[6]. Funk DJ, Kumar A (November 2014). "Ebola virus disease: an update for anesthesiologists and intensivists". Can J Anaesth.
[7]. Drazen JM, Kanapathipillai R, Campion EW, Rubin EJ, Hammer SM, Morrissey S, Baden LR (November 2014). "Ebola and quarantine". N Engl J Med 371 : 2029–30.
[8]. Chowell G, Nishiura H (October 2014). "Transmission dynamics and control of Ebola virus disease (EVD): a review". BMC Med 12: 196.
[9]. Ebola virus disease Fact sheet No. 103. World Health Organization. September 2014.EW