ejpmr, 2020,7(6), 894-898

SJIF Impact Factor 6.222

EUROPEAN JOURNAL OF PHARMACEUTICAL AND MEDICAL RESEARCH

www.ejpmr.com

Review Article

ISSN 2394-3211

EJPMR

REVIEW ON EBOLA VIRUS

***Prof. Chopade B. L. and Prof. Kale V. A.**

Department of Pharmacognosy and Pharmaceutical Chemistry Pratibhatai Pawar College of Pharmacy, Shrirampur, 413709.

***Corresponding Author: Prof. Chopade B. L.**

Department of Pharmacognosy and Pharmaceutical Chemistry Pratibhatai Pawar College of Pharmacy, Shrirampur, 413709.

Article Received on 21/04/2020 **Article Revised on 11/05/2020** **Article Accepted on 31/05/2020**

ABSTRACT

Ebola virus (EVD) outbreaks are a painful reminder of any epidemic that may pose a danger in any region. In most affected nations, the Global Health Protection Strategy aims to improve public health networks to reduce the outbreak before crises occur. The hemorrhagic fever is most often found in a gastrointestinal tract and occurs in less than half of patients. Drainage, stupor, confusion, hypotension, multipleorgan fails, leading to a bright shock and eventually death, are all progressing symptoms over time. Various vaccine candidates are currently undergoing preclinical testing. Infection of macrophages has been believed to be one of the causes of hemorrhage growth. The goal of the proposed research is to investigate the cause and management of the Ebola virus and provide all stakeholders, including the general public, with specific and reliable knowledge about the need for the period.

KEYWORDS: Disease, infection, epidemic, illness, administration.

INTRODUCTION

The disease of the Ebola virus is also referred to as hemorrhagic Ebola fever (EHF) This, as the name implies, causes the human body and other primates to suffer an abnormal bleeding inside and outside the body. The outbreak of Ebola was caused by a viral infection which was first discovered by a river in Africa in the Democratic Republic of the Congo (formerly Zaire). According to the International Committee for Virus Taxonomy it originates from Ebola genus with the Filoviridae family.

A high-level human and nonhuman primates, apes, gorillas, and chimpanzees, are considered to have EHF as an acute viral disease. EHF is caused by one of five Filoviridae family members with genetic variations.

1) Zaire ebolavirus (ZEBOV)
2) Sudan ebolavirus (SEBOV)
3) Ivoire ebolavirus
4) Bundibugyo ebolavirus (BDBV)
5) Reston ebolavirus (REBOV)

Just one human case was followed by Ivoire ebolavirus2. REBOV has been detected in swine with pork and respiratory disease in nonhuman primates (NHP). In the case of REBOV, it was detected. In the first laboratory to be located in Reston, Virginia, USA in 1989, some quarantine, crabfed Macaque monkeys from the Philippines got ill and died.[1]

Ebola viruses are responsible for much of the EHF outbreak in Zaire, Sudan and Bundibugyo but ZEBOV presents a especially important threat to human as well as NHP in subSaharan Africa. A serious and often fatal disease in humans is Ebola Virus Disease (EVD). The fatality rate of EVD outbreaks is up to 90%.[1]

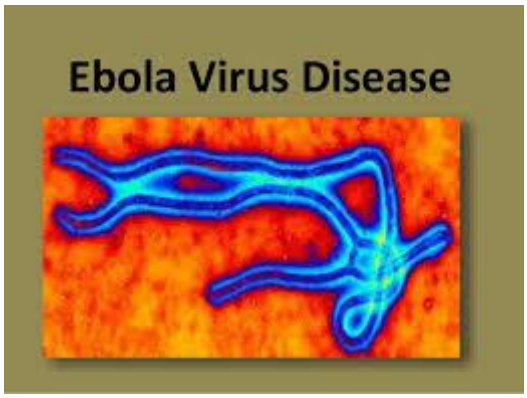


Fig. 1: Ebola Virus Disease.

Ebola Virus forms Ebola hemorrhages (EHF) is caused by a genetically-defined category of five above.

1. Ebola virus or Ebola virus of Zaire (EBOV), the largest fatality risk of all 5 and up to 90% in some outbreaks. Ebola virus (EBOV) Zaire Ebola has symptoms such as malaria, and sometimes quinine is used for doctors. The virus transmission was due to the needle reuse without sterilization for the Lokela injection.

The simultaneous transmission is also induced by the conventional process of intermentation, which includes washing and purification of the gastrointestinal tract.[3] Just one human case was found with Zaire Ebola virus.
2. The virus also affected people who worked in the Nzara, Sudan cotton factory with the first case being a worker who is exposed to a possible natural reservoir.[4]
3. Tai forest virus was first discovered in the Tai Forest chimpanzees in Cote d Ivoire, Africa. Tai Forest virus (TAFV) also known as the Ivory Coast virus Ebola and Tai Ebola virus. The cause of infection was believed to be the meat that the chimpanzees had been victim to from tainted Western Red Colobus monkeys. Ebola was transmitted by one of the scientists who necropsised infected chimpanzees.
4. BDBV is a close relative to the much more widely recognized infectious Ebola (EBOV). Bundibugyo virus (BDBV) is a similar relative. The name BDBV originates from the town of Bundibugyo, named after the first discovered town in Ugandan Bundibugyo.[6]
5. The virus Reston (RESTV) is not known to cause human disease.

However, in primates, it is not pathogenic to humans. Reston Ebola virus disease has been found in nonhuman primates and has also been sexual and respiratory disease in swine infected species. In occasional outbreaks, EHF typically occurs during the rainy season and is transmitted to humans in a medical setting.[7]

Taxonomy of a filovirus
Mononegavirales
There are sub classes which is are as follows:
1) Rhabdoviridae
2) Filoviridae
3) Paramyxoviridae

In that Filoviridae subclass is 1) Malburgvirus 2) Ebolavirus
Ebola Virus Types
- Zaire
- Reston
- Sudan
- Ivoary coast

History
Ebola was first identified in 1976, when hemorrhagic Ebola fiber began to grow in Zaire and then in Sudan again later that year. The Zaire Ebola virus has one of the highest human virulence levels. In 1976, 88%, 81%, 1995, 1996, 2002, 2002, and 2003 were destroyed by the Ebola virus, and 2003 by 80%, 2002 and 2002 by 80%, but not the same outbreak.

The fatality risk of Sudan's Ebola is smaller, but still very dangerous: by 179, by 79%, by 79%, by 65%, by 2000, by 53% and 2004, by over 400 patients.

The first time that a scientist has dissected Ebola chimpanzees was in 1994 when the Ebola virus was first identified. Ivory Coast Ebola virus Most of the Ebola virus infections originated from Africa and only moved to other countries by freight or by unintended exposure in research facilities[8], Prevalence Ebola virus perfected with Democratic Republic of Congo10, 1976 in Sudan, Nzara, Yambuku.[10,11] In Sierra Leone, Liberia, Guinea in March 2014, the World Health Organization characterized the prevailing Ebola smash. The year 2014 The Zaire Ebola virus is the longest, strongest and most teal epidemic convulsion in the past in West Africa.

As of 11 February 2015, 22,859 EVD incidents were registered, with around 9,162 deaths in 36 years (19762012), with six deaths in total 12, 13, 14, compared with theestimated total number of past events.[12] There have been 23 outbreaks of Ebola from 1976 to December 2012, a total of 2388 cases of Ebola, of which 15 were records of 15 deaths.

Ebola virus disease (EVD) has existed primarily in sub Saharan Africa since it was discovered in 1976. Several bat species were described in the research in Bangladesh[18], China, and Rousettus leschenaultia fruit bats, and in Indonesia[16], Indonesia, with serological proof of Ebola virus infection.

Table 1: Ebola virus outbreak incidence in multiple countries.

Country	Comprehensive scenario	Confirmation of test events	Death
Guinea	2292	2051	1428
Liberia	7719	2830	3177
Sierra Leone	7897	6357	1768
Nigeria	20	19	8
United state	4	4	1
Spain	1	1	0

Onset
Initiation EVD takes 2-21 days before symptom onset to be incubated.

Incubation is 4 to 10 days in length19

Symptom
In 40 to 50 per cent cases bleeding at puncture points and mucoso membrane (e.g. lips, urinary tract, nose, neck, anus, and gum), rottenness in the skin, and violent diarrhea, many affected individuals exhibit certain signs

in circulatory processes, such as damaged blood clots, etc.

Others Symptoms

- **Rashes**
- **Abdominal Stomach Pain**
- **Severe Headache**
- **Muscle Pain**
- **Fatigue**
- **Weakness**
- **Diarrhoea**
- **Vomiting**
- **Heamorrhage**
- **Conjuctivitis**
- **Genital Swelling**
- **Sensitivity to pain on the skin and Reddening on the roof of the mouth**

Epidemiology

The viral disease of Ebola is an infectious disease and any infection of humans starts with a fishing, direct interaction with infected livestock, captures of bushmeat.[25] Ebola is the product of a livestock stockpile.

A big cause of infection is close contact with a infected person, who is at the peak level of infectious infection, or the patient's tainted items.

Fluids and secretions are primarily contagious, including sweat, saliva, urine, diarrhea, feces and semen. Filovirus enter the host by cutting and abrasions on the skin26 across the surfaces of the mucosa.

Mode of transmission ebloa virus

Fruit Bat virus Store in a fruit bat. Virus reservoir: Epozootic in monkeys that are infected with fruit bat enter direct or indirect contact with the animals and pass on infection that often occurs in largscale epidemics from Gorillas and other monkey species. Bat transmit the virus through migtion.

1) Primary human infection: human beings become infected either by bats or by the handling of dead or injured animals in the forest.

2) Secondary human infection: human transmission is secondary through direct blood contact.

Ebola virus patho physiology

Ebola virus is a natural source in bats belonging to the Pteropodidae family, whereas human and nonhuman primates are unintended hosts. These viruses persist in nature until significant natural or human modifications, elements of importance or ecological factors cause them to thank.[27] Bats and primates are infected with human filovirus interacting with the viral stick glycoprotein that binds the viral particles to the surface of the cell.[28]

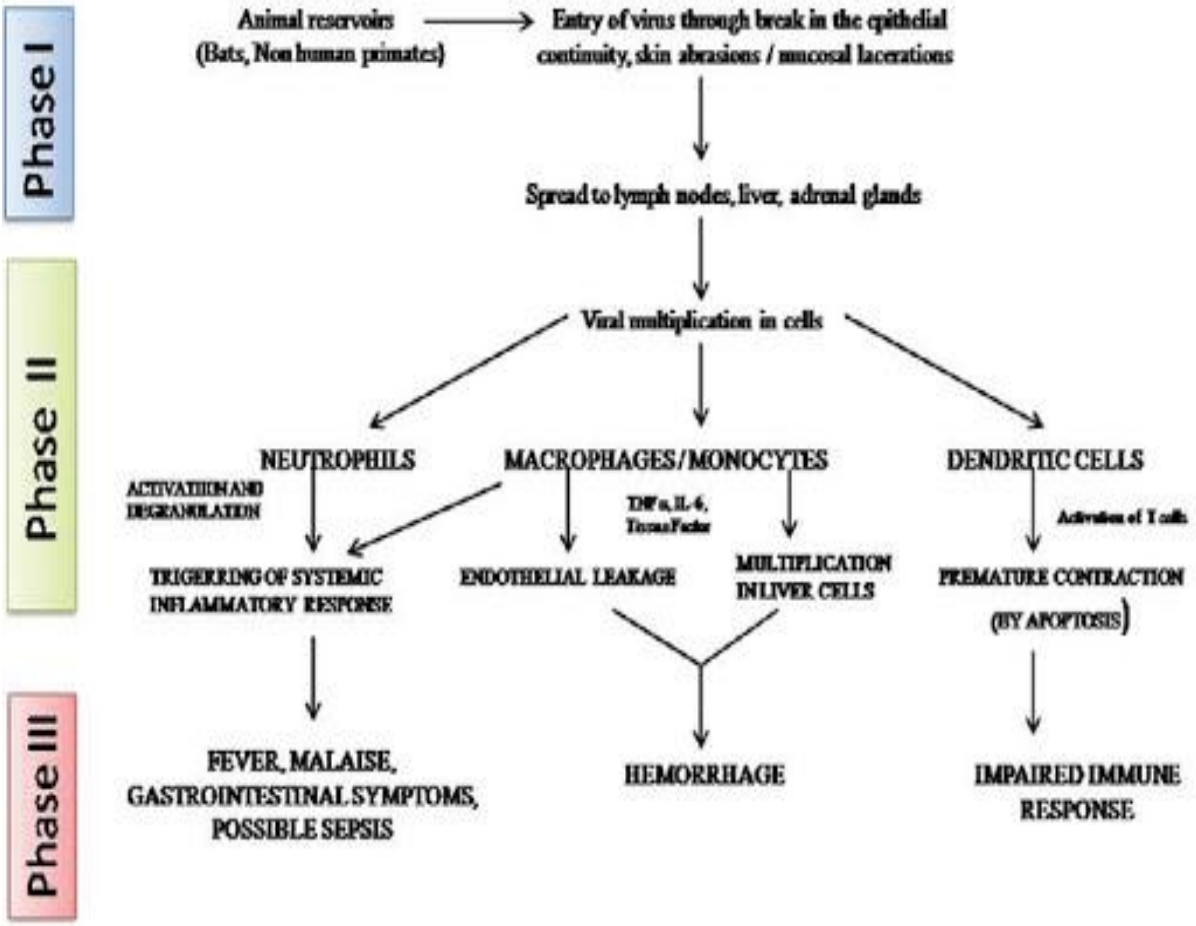
Human to human spread is the core characteristic of epidemics.

Direct infection of monocytes and macrophages results in the release of cytokines to cause inflammation and fever, causing Ebola virus immune responses and cell damage29.EBOV primarily affects the lymph nodes, liver and adrenal gland after entry in the human body.

• Lymph nodes: EBOV triggers macrophage inflammation and dendritic cell inflammation. They cause lymphocytes to deteriorate and host immune response to injury.

• Liver: In liver, the damage to the endothelial cells causes inflammation and necrosis by hepatocytes. The blood vessel lining forming was done. Coagulation of the infected person's blood was complicated. As the platelets can not bind, can also lead to hypovolemic shock or blood pressure drop and death.

• Adrenal: it causes inflammation and adrenal cortical cell necrosis in the adrenal gland. Because of the deficiency in steroid synthesis.



Pathophysiology of Ebola virus disease EVD treatment
The treatment of Ebola virus infections is based on clinical testing.[30,31,32]

Section 2: EVD analytical laboratory test.

Antigen Detection test	Kidney Function test
Serum Neutralization test	Electrolytes
RT-PCR assay	WBC
Virus isolation by the cell culture	Repeated platelet count
Haematocrit	Hemoglobin
ELISA	Liver Function test

There are seven steps below to handle EVD33: Prepa ration criteria for EVD33
Management of Ebola Virus

- Prepare
- Determine the appropriate level of infection Control the measure
- Access the patient
- Appropriate Isolation and logistics
- Appropriate consultant and team
- Therapeutic approach
- Additional Communication

Treatment of EVD There are no clear therapies or therapy. Therapy of EVD is not possible. This care is largely focused on supportive and symptomatic medication toensure that antibiotics, organ failure control and antimalarial medications are provided with sufficient hydration and nutritional assistance, as needed.[34]

Therapeutic approaches & treatment of EVD
There is no particular treatment for EBOLA. The treatment is depend on symptomatic remedy. Some drugs which is given according to the symptoms of patients. The antibiotics and antimalarial agent which given to the patients.

Favipiravir (T-705)
CMX001 (Brincidofovir
Clomiphene & Toremiphene
Human adenoviruses 25 and 35 and MVA vectors
Anti-Ebola hyperimmune globulin

The above medications or agent which is given to the patients according to the conditions of the patients, The Virus is novel and there are so many researches are carried out to search the proper vaccines on the ebola.a

RECOMMENDATION AND INFERENCE

Since its discovery in 1976, Ebola has been a threat to human health because of horrible behaviour. Ebola fever has emerged as one of the deadliest types of hemorrhagic fever that has been reported and causes higher mortality and morbidity. Human transmission happens predominantly by transmitting secretions of the blood and body. Additional ways of growth include infection in the hospital and bad sanitation. There is a growing need for awareness to be disseminated to the population and for doctors and nurses' and other staff preparation programmes.

In future, the awareness of the distinctions between Ebola virus species needs to be given priority. The best way to reduce outbreaks and epidemics is to stop disease transmission. In order to build focus for the eradication of illness, educational campaigns will be conducted on a broader scale. Although significant changes have been made over the last decade, improved tracking, realtime data exchange and swift action based on the information available remain needed. The infection transmission can be prevented by early diagnosis, touch monitoring, patient isolation and treatment, infectious prevention and healthy bury as Ebola virus is primarily transmitted via the body fluids of symptomatic patients. Ebola Disease is caused by several causes. It takes up to twentyone days for viral violence and symptoms.

REFERENCES

1. Gatherer D. A Ebola virus disease in Africa. General of Virology, 2014; (95): 1619–1624.
2. Mittal V, Ebola - A Indian Perspective. The Indian Journal of Pediatrics 2015(13).
3. Webb PA, Isolation of an Ebola virus causing hemorrhagic in Zaire, 1977(1).
4. Ebola haemorrhagic fever at Sudan, 1976, International Study Team, 1978; (56): 247–70.
5. Kawaoka Y, Netesov SV,. Proposal for a revised taxonomy of the family Filoviridaenames of and viruses with abbreviations. Archives of Virology, 2010; 155(12).
6. Isaacson M, Swanapoel R, Marburg virus disease in the Kenya. Lancet in, 1982; 1: 816– 20.
7. Barrette RW, Discovery of Swine as a host for the Reston ebola virus. Science, 2009.
8. Karunakar T, A review on Ebola virus. International Journal of Pharmacotherapy, 2013; 3(2): 55-59.
9. Peters CJ, LeDuc JW. An introduction to Ebola, Journal of Infection, 1999; (1): 9-16.
10. Baron RC, Ebola virus disease in the Sudan, Bulletin of the World Health Organization 1983; 61(6): 997-1003.
11. The Ebola haemorrhagic fever in Zaire, 1976, The International Study Team. News World Health Organization, 1978; (56): 271–93.
12. Shears P, Ebola Virus Disease in Africa, Journal of hospital infection, 2015(90).
13. Meltzer MI, Estimation of the future number of cases in the Ebola epidemic, 2014–2015.
14. Morbidity and Mortality weekly report Surveillance Summary, 2014(63).
15. Gostin LO, A retrospective and prospective analysis of the west African Ebola virus disease epidemic, robust national health systems at the foundation and an empowered WHO at the apex. Lancet, 2015.