

Outbreak of Ebola Virus in West African Countries 2014: A New Challenge

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Abstract: It is true that nature cannot be changed, the Ebola virus disease (EVD) is example. Once again the virus repeats the history and killed many lives. From very ancient time the human being fighting against many diseases, some diseases eliminate from the surface of the globe i.e Small Pox and many still remain a challenging target for the human beings i.e Tuberculosis, Malaria, Dengue etc. Ebola virus is a key challenge for the world. The current outbreak of the Ebola virus occurred in the West African countries includes Guinea, Liberia, Sierra Leone and Nigeria. A total of 1779 suspected and confirmed cases of Ebola virus were reported up to 06 Aug, 2014. The cases fatality rate was found high with a ratio 54.02% (961 cases). The ratio of laboratory confirmed cases were 63.74% (1134 cases). High no of suspected and confirmed cases were recorded from Sierra Leone 717 followed by Liberia 554, Guinea 495 and only 13 cases were reported from Nigeria. In Guinea the cases fatality was high 74.14% while the low case fatality were recorded in Nigeria 15.38%. It is clear that the Ebola virus have travelling history from Guinea to others countries. Proper protective measurements, treatment, avoid contact with infected patient's blood, fluid, aware and educate the local community about the Ebola virus cause and transmission etc. We recommended further studies.

Key words: Disease • Eliminate • Small Pox • Malaria • Tuberculosis • Dengue • Ebola Virus Disease
• Outbreak • Case Fatality

INTRODUCTION

The Ebola virus disease (EVD) formally known as Ebola hemorrhagic fever (Ebola HF) first time investigated in 1976 from the Democratic Republic of the Congo (formerly Zaire) in Africa. The virus cause disease in human and nonhuman primates includes gorillas, chimpanzees and monkeys [1]. The virus belongs to family Filoviridae and genus Ebolavirus. The genus has five distinct species, Zaire ebolavirus (EBOV), Reston ebolavirus (RESTV), Bundibugyo ebolavirus (BDBV), Tai Forest ebolavirus (TAFV) and Sudan ebolavirus (SUDV). In Africa the BDBV, EBOV and SUDV have been associated with large EVD outbreaks. On the other hand the Reston ebolavirus (RESTV) found in Republic of China and Philippines. It also infects the human but no death has been reported to date from this species in

human [2,3]. However the current outbreak in Guinea was cause by EBOV [4]. The case fatality rate is range between 50-90%. The symptom of the EVD are vomiting, with a sudden onset of fever, cough, muscle aches, headache, diarrhea, rash and malfunction of liver and kidneys, sometime with internal and external bleeding, Abdominal (stomach) pain, lack of appetite, chest pain, red eyes, difficulty in breathing [5]. The diagnosis of the EVD are difficult having the common symptom with others disease. Although the laboratory tests have been done include enzyme-linked immunosorbent assay (ELISA) testing, IgM ELISA Virus isolation, Polymerase chain reaction (PCR), Immunohistochemistry testing and IgM and IgG antibodies [6]. No vaccine and no specific treatment are available for EVD. The patients required oral rehydration with solutions containing intravenous fluids or electrolytes due to frequently dehydration [3].

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MATERIALS AND METHODS

This study aimed to assess the suspected and confirmed cases of EVD, find out the case fatality rate, update the epidemiology of the EVD and provide the information related to the disease. And also were the population about the EVD. In the preparation of this article helped was taken from different articles, research papers, editorial published in Journals. The help was also taken from news, WHO and CDC reports. For the electronic searching different search engine was used include Google, WHO site, CDC site, Pub med, Google Scholar, Journal sites etc. Key words used in this study include, EVD, current outbreak of EVD, transmission and cause of EVD, EVD in West Africa, EVD in Guinea, Sierra Leone, Liberia and Nigeria, current update about EVD etc. Data were analyzed using Microsoft Excel 2007.

Current Outbreak of Ebola Virus in West African Countries: The current outbreak was occurred in West African countries include the Guinea, Liberia, Sierra Leone and Nigeria. A total of 1779 suspected and confirmed cases of EVD were reported up to 06 Aug, 2014, with a 961 (54.02%) cases fatality rate. The 1134 (63.74%) were laboratory confirmed cases (Figure 2) [8].

Country Wise Distribution of Ebola Virus: Currently the four countries were infected with EVD.

Guinea: In Guinea the total suspected and confirmed cases were 495. The case fatality was 367 (74.14%) and laboratory confirmed cases were 355 (71.72%) reported by the Ministry of Health of Guinea and WHO up to 06 August 2014 as shown in Figure 2. In Guinea the active surveillance continues in Kourourssa, Nzerekore, Conakry, Guéckédou, Siguiri, Pita and Macenta Districts [8].

Liberia: In Liberia, 554 suspected and confirmed cases, including 294 (53.09%) fatal cases and 148 (26.71%) laboratory confirmations of EVD and the laboratory testing is being conducted in Monrovia (Figure 2). The cases were reported by the Ministry of Health and Social Welfare of Liberia and WHO [8].

Sierra Leone: In Sierra Leone, a total of 717 suspect and confirmed cases were reported by the Ministry of Health and Sanitation of Sierra Leone includes 298 (41.56%) fatal



Fig. 1: Map of West African countries taken from <https://www.google.com.pk> [7] (Nigeria, Liberia, Sierra Leone, Guinea)

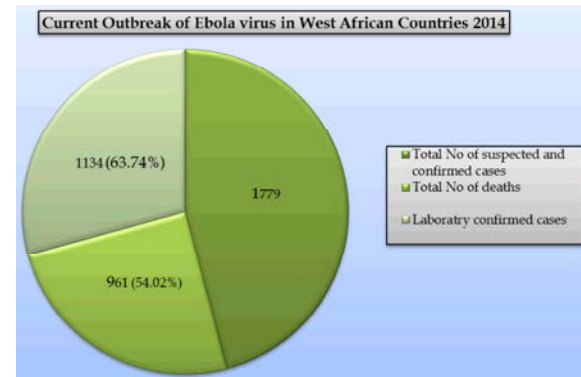


Fig. 2: Total No. of suspected and confirmed cases, total No. of deaths, total No. of laboratory confirmed cases in West African countries (Guinea, Liberia, Sierra Leone, and Nigeria) up to 06 August, 2014

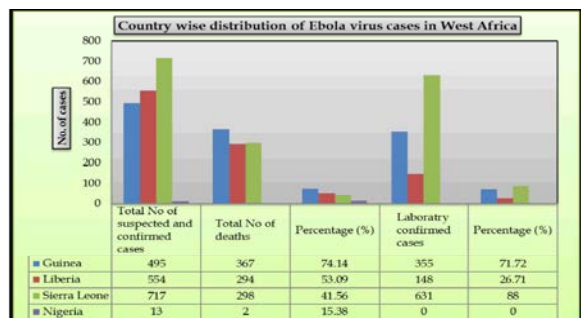


Fig. 3: Distribution of Ebola virus cases in West African countries (Guinea, Liberia, Sierra Leone, and Nigeria) up to 06 August, 2014

case and 631 (88%) cases have been laboratory confirmed (Figure 2). Across the country investigations, reports and testing of suspected cases continue [8].

Nigeria: On the other side, the Nigerian Ministry of Health and WHO reported 13 suspected cases of EVD from Nigeria include 2 (15.38%) fatal cases (Figure 3) [8].

DISCUSSION

The first outbreak of the EVD was reported in 1976 from Zaire country. A total of 318 cases were reported with 280 (88%) death rate [1,9]. The last outbreak was occurred in November 2012, Democratic Republic of Congo reported 77 cases and 36 (46.75%) deaths and 7 cases along with 4 (57.14%) deaths in December 2012 from Uganda [10]. The current outbreak of EVD starts in December 2013 in Republic of Guinea and spread to the neighboring regions. Initially the outbreak occurred Gue'cke'dou in Guinea's eastern rainforest region in the Prefecture (Province), Guine'e Forestie're (Forested Guinea), then 80 km to the east the disease spread to the Prefecture of Macenta [4,2]. On 6 December 2013 a 2 year old child died from EVD disease. Beginning of March 2014 the disease spread to the other five location of Gue'cke'dou from Meliandou [4]. The World Health Organization released first issued communique' on March 2014 [11]. The suspected cases of EVD were also reported in the Liberia and Sierra Leone countries of West Africa. From Liberia 8 suspected cases with 6 deaths (75%), while from Sierra Leone the total 6 suspected cases along with 5 deaths (83.33%) investigated on March 27, 2014 [12]. The EVD transmitted by a woman arriving from Guinea to her sister in Foya, who then travel to the Liberian capital Monrovia having the populations approximately 1 million. So it may clear that the disease transmitted from the Guinea to Liberia [13,14]. In Guinea the outbreak began in March 2014, the disease spread to the neighboring countries includes Liberia and Sierra Leone. CDC issued the Alert Level 2 Travel Notice for travelers to Nigeria on August 2014. The purpose of this Alert Level 2 was notifying travelers to the area practice careful hygiene to avoid contact with body fluids and blood of people ill with EVD [15]. Current outbreak of the EVD is the most complex and biggest one in history. Many lives have been lost. CDC avoids nonessential travel to the West African nations of Guinea, Liberia and Sierra Leone and issued Level 3 travel warning [16]. A total of 242 suspected cases were reported from Guinea and Liberia along with 147 (60.74%) up to 20 April 2014 [17]. From Guinea, Liberia, Sierra Leone and Nigeria between 31 July and 1 August 2014, a total of 163 new cases (laboratory-

confirmed, probable and suspect cases) EVD were reported along with 61 (37.42%) case fatality rate. Out of these cases the three were reported from Nigeria include two new probable cases. The one case shows travelling history to Guinea [11]. Finally the EVD cases were also reported from the Nigeria on 20 July 2014, showing the travelling history to the Liberia. A man who infected with an EVD arrived on a flight from Liberia and was the first case to be internationally exported by air travel [18].

In the recent outbreak the high cases were reported from Sierra Leone up to 06 Aug 2014. The rate of case fatality was found high in Guinea. According to Gatherer [2] reported 208 cases of EVD from Guinea include 136 (65.38%) case fatality rate. On the other hand he reported 46 cases from Liberia with a ratio of 13 (28.26%) case fatality rate. In both countries Guinea and Liberia the No of cases increased too much 495 and 554 respectively. In Guinea the case fatality rate were recorded high 74.14 as compare to others countries in the recent outbreak while from Liberia the 53.09%, Sierra Leone 41.56% and 15.28% were reported from Nigeria up to 06 August 2014 [8].

The outbreak of the EVD in the West African countries is alarming health problem for the Guinea, Liberia, Sierra Leone and Nigeria and also for the neighboring countries. The reported cases of EVD in Liberia shows travelling history to Guinea and the other hand the disease transmitted from the Liberia to Nigeria. It shows that the EVD has travelling history in these countries. The most affected countries Guinea, Liberia and Sierra Leone come out from following years of war and civil conflict to political stability. Due to which the health systems largely destroyed or severely disabled. Lacks of health facility make the control of the disease difficult, because the detection and isolation of cases, contact monitoring and tracing, infection control procedure, difficult to implement. Unavailability of vaccines and proper curative treatment contributes in the spreading of the disease [19]. To date, the total 171 health care workers have been infected with EVD and 81 (47.65%) have died [18].

Recommendation: As we early discussed that the EVD is transmitted through direct contact with blood, fluid or contact with contaminated equipment. The health agencies need to stop the spreading of the diseases from the rest of the countries, control and eliminate the diseases where the current outbreak occurred.

- Protective measurement should need to control the disease.
- Educate and aware the people about the spreading of EVD, transmission etc.
- Case detection is very important.
- Avoids blood and fluids contact with the infected patients.
- Avoids unnecessary travelling to those countries where the EVD cases has been reported.
- The health care workers wear the protective clothes and use gloves, gown, masks and goggles.
- The equipment should be sterilize and use the infection control measures.
- Further studies recommended.

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