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EBOLA VIRUS DISEASE OUTBREAK-LETS GO BACK TO BASICS

This year's Ebola outbreak in West Africa which started in March, 2014 is unique in contrast to the previous well localized outbreaks, it is very severe, the first to affect urban areas and has spread over large areas. Ebola Virus Disease (EVD) outbreaks were first described in 1976 in two neighbouring locations, Southern Sudan[1]and in Northern Zaire, now Democratic Republic of the Congo (DRC).[2,] These were known later to be caused by Sudan Ebola virus (SUDV) and Zaire Ebola virus (EBOV) respectively. The third African species was discovered in 1994 in Cõte d'Ivoire known as Taú Forest Ebola virus (TAFV)[3] while the fourth was discovered in Equatorial Africa, known as Bundibugyo Ebola virus (BDBV) in 2007.[4] The fifth specie, known as Reston Ebola virus (RESTV) was first described in 1989 in Philippines.

Ebola virus causes a severe form of disease that is associated with high case fatality rate, can be as high as 90%.[5] The Genus Ebola virus consists of five distinct species mentioned above. However, virtually all the human cases and outbreaks are due to the emergence or re-emergence of Ebola Virus Disease (EBOV) and Sudan Ebola virus (SUDV) in the remote villages in Central and West Africa .Therefore, these two species are the Ebola viruses of major public health importance in the affected region. The RESTV has not been found to cause infection among healthy adult male.[5]

As at August 15, 2014, there have been a cumulative total of 2,127 suspected and confirmed cases of EVD and 1,145 deaths in Guinea, Sierra Leone, Liberia and Nigeria. The breakdown are: Guinea, 519 cases (376 confirmed, 133 probable, and 10 suspected) including 380 deaths; Sierra Leone, 810 cases (733 confirmed, 38 probable and 39 suspected), including 348 deaths; Liberia, 786 cases (190 confirmed , 423 probable and 173 suspected) including 413 deaths ; and Nigeria, 12 cases (11 confirmed, 0 probable, and 1 suspected), including 4 deaths.[6] The first case in Nigeria was reported when a Liberian-American citizen, Patrick Sawyer, who boarded flight from Liberia and landed in Lagos, Nigeria, became seriously ill while in the plane and died five days after in Nigeria. Some of the contacts of Patrick Sawyer, mainly health workers have become symptomatic and three of them have died. This outbreak when combined with the dreaded Boko haram epidemics which have claimed the lives of thousands of people put Nigerian citizens in a state of extreme fear and consequent serious health challenges. There are two types of exposure in patients with EVD, namely; primary and secondary exposure. In primary exposure, there is history of travel to or work in an Ebola-endemic region, but more commonly involve history of exposure to tropical African forests. Secondary exposure refers to human-to-human or primate-to-human exposures. The Ebola virus is introduced into the human population through close contact with the blood, secretions, organs or other bodily fluids of infected animals. The animals that have been implicated in Africa include infected Chimpanzees, gorillas, fruit bats, monkeys, forest antelope and porcupines; however fruit bats are the most implicated.[7]

In the community, intra-human to human transmission occur mainly through direct body contact with the blood, secretions, organs or other bodily fluids of infected people, and indirectly through contact with environments contaminated with such fluids. Individuals at risk include health care workers, family members who cared for patients with EVD, mourners and those who prepared deceased patients for burial in Africa, and animal care workers who provide care for primates. However, health care workers are the major victims in the hospital while caring for the suspected or confirmed EVD patients; and men who survived the infection can still transmit Ebola virus up to 7 weeks in their semen.[7]

The incubation period of Ebola virus is 2 to 21 days after which the infected individuals manifest the non-specific clinical features. It is characterised by sudden onset of high grade fever (>38^{o}C), intense weakness, myalgia, headache and sore throat. This may be followed by vomiting, diarrhoea, maculopapular rash, impaired kidney and liver functions, both internal and external bleeding and shock. Laboratory findings include leucopaenia, thrombocytopaenia and elevated liver enzymes. Differential diagnoses include malaria, typhoid fever, shigellosis, cholera, leptospirosis, plague, rickettsiosis, relapsing fever, meningitis, hepatitis and other viral haemorrhagic fevers. Laboratory diagnosis can be done with antibody-capture enzyme-linked immunosorbent assay (ELIZA), antigen detection tests, serum neutralization tests, reverse transcriptase polymerase chain reaction (RT-PCR) assay, electron microscopy and virus isolation by cell culture.[7] At present, there is no approved vaccine and drug for its treatment, and management is mainly supportive and in isolation.

There is need to raise awareness of the risk factors for Ebola infection and the protective measures that can be applied. These include but not limited to avoiding contact with infected fruit bats, monkeys/apes, Chimpanzees, antelope, and consumption of their raw

meat, proper cooking of animal product (meat and blood) before consumption and wearing of gloves and other appropriate protective clothing before handling animals.[5,7] In the community, close physical contact with infected patients particularly with their body fluids should be avoided. Gloves and appropriate personal protective equipment should be worn when taking care of ill patients and regular hand washing with soap and hand sanitizers after visiting, taking care of or contact of suspected patients with EVD. People should apply these precautionary methods when taking care of corpses of their loved ones, and people who died from Ebola virus should be promptly and safely buried.[7] The religious leaders in the churches and mosques should also increase the awareness of the congregation about the Ebola virus disease and the precautionary measures to control and limit its spread.

Health care workers are particularly at risk, therefore, there is need to apply universal precautions consistently when attending to all patients regardless of their diagnosis. These include basic hand hygiene, wearing of gloves, facial protection, wearing of gowns, prevention of needle stick and injuries from other sharp instruments, respiratory hygiene and cough etiquette, environmental cleaning and linens hygiene, safe waste disposal and patient care equipment. In addition, those taking care of suspected or confirmed EV should apply other control measures to avoid exposure to blood and body fluid of patients, and contaminated environments. Samples received in the laboratory should be handled by adequately trained staff and processed in suitably equipped laboratories.[8]

The role of mass media is important in creating awareness about the EVD, its common symptoms and signs, to inform people to go to hospital when they are ill or suspected of having EVD. The community should be enlightened on the need to allow suspected or confirmed cases of EVD to be managed in the hospital to limit the spread. They should be discouraged from taking their relatives away from the hospital, and also know the importance of contact tracing. The religious leaders and trado-medical practitioners should also be discouraged from keeping suspected or confirmed cases in their custodies.

The government should improve on the existing health facilities including severe human resources constraints. There is need to equip designated centres in all the state capitals and federal capital territory for the management of EVD. Health care workers should be trained on infection control measures to protect themselves and to provide adequate care for patients. Proper screening of those visiting Nigeria from other countries especially those from the neighbouring West African countries before being allowed to enter the country. Also, those suspected or confirmed of having EVD should not be allowed to leave the country. Nigerian government should collaborate with the neighbouring African countries to limit the geographical spread of cases through their boarders including those of corpses.

The national and international research institutions should assist in the development of vaccine and drugs for EVD. They should also assist in the training of health workers. They can also assist in providing funds and facilities through their donors' agencies.

In conclusion, EVD is associated with high morbidity and mortality rate but there is lack of approved vaccine and therapeutics for its treatment. Therefore, we should go back to the basics in order to combat this deadly disease.

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