

Euro Pathology 2018: Viral Haemorrhagic Fever in North Africa; an Evolving Emergency - Mohamed A Daw - Department of Medical Microbiology, Faculty of Medicine - Tripoli, Libya.

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Introduction:

Viral hemorrhagic fevers (FHV) are serious viral infections capable of causing life-threatening death associated with multi-organ failure resulting in high mortality rates. They cause serious epidemics resulting in a catastrophic situation which can interrupt normal life, commerce or the social structure of a community. This is particularly prevalent in poor African countries, especially the tropical zone; the natural niche of these viruses. Nowadays, in Africa, many viruses are known to cause haemorrhagic fevers, including Ebola, Magdeburg and yellow fever. Although these diseases have genetic and antigenic differences, they will be considered together because they have very similar transmission, clinical presentations and management. The filoviruses, Ebola and Marburg, can cause epidemics, with a high mortality rate, while Lassa has a lower mortality rate. Recently, Ebola epidemics have been growing, causing widespread concern about severe symptoms, high death rates and fear of epidemic or pandemic spread associated with mass immigration to non-endemic countries. 'Africa and Europe. WHO has however reported that more than 20,000 cases are infected and 7,600 are likely to have died. Immigration from Africa has been influenced by political instability and armed conflicts in North Africa, particularly in Libya, which have resulted in massive displacement of people. These emerging infectious diseases pose a major threat of global spread, if they originate in Africa. There is therefore an urgent need to intensify surveillance efforts for most VHF in other African countries, particularly those located a short distance from endemic areas and which could be easily reached by immigrants.

Libya is the second largest country in Africa and the seventeenth in the world with the longest coast of the Mediterranean facing the countries of Southern Europe. This country is known as the "gateway to Africa" bordering six different countries, where infectious

diseases are considered endemic, especially among sub-Saharan countries. The country has an area of 1,775,500 km² and a population reported in mid-2006 as 5,323,991, which gives a population density of 2.9 people per km². It has the highest literacy and schooling rate in North Africa and the Arab countries. Life expectancy (73 years) and health-adjusted life expectancy (64 years) are among the best in the Middle East and North Africa. The high economic visibility and the geographic location of the country have attracted many young people from all over Africa for work and immigration. This could be reflected enormously in the geoepidemiology of infectious diseases, particularly among the countries of the Mediterranean basin. In recent years, Libya has attracted worldwide attention, as many Africans transit there to enter southern Europe illegally, with the possibility of transmitting an infection in transit or to its destination. After the Libyan armed conflict (February 2011), more than 80,000 illegal Africans immigrated each year via the Libyan coast. The absence of a strong central government and the deterioration of health services make it difficult to guard the country's long borders and control any emerging infectious disease. In the summer of 2014, fierce fighting between the two most powerful revivals of the February revolt caused the immigration of more than half a million people in the capital alone. In the northwest of the country, an unusual emerging infectious disease has occurred among camps for African immigrants. The concern elevated the possibility of introduction and transmission of hemorrhagic viruses in Libya and therefore in the EU associated with the ongoing and rapidly evolving epidemics in tropical and West African countries.

Viral Hemorrhagic Fevers in Africa

The term "viral hemorrhagic fever" (VHF) is used to describe the spectrum of the disease caused by members of four different families of enveloped RNA virus. Currently there are over 20 members in this group.

However, some of them were associated with high morbidity and mortality, especially in tropical regions of the world. Primary transmission to human and non-human primates remains uncertain. Current outbreaks have been associated with multiple introductions into the population, indicating the circulation of distinct strains that have evolved in reservoir species that occupy different ecological niches. In endemic areas, they cause long-lasting, slow-burning epidemics that can disrupt normal life, commerce, or the social structure of a community. In Africa, six viral hemorrhagic fevers are known. Yellow fever, Rift Valley fever, Crimean-Congo hemorrhagic fever, Lassa fever, Marburg virus disease and Ebola hemorrhagic fever. The endemic scope of these infections is limited by the ecological and climatic requirements of their hosts and vectors, so that they mainly exist in predictable geographic areas the etiological and epidemiological aspects of FHV in Africa. Four main types of African VHF are of concern to non-epidemic countries. They also meet the definition of danger group 4 pathogens and can be transmitted from one person to another. These VHF are: Crimean-Congo hemorrhagic fever (CCHF), filovirus hemorrhagic fevers (Marburg and Ebola) and Lassa fever.

Considering the epidemiological risks for FHV, the Ebola virus seems to be the most likely to be easily transmitted by humans in neighboring African countries. Ebola first appeared in 1976 in Sudan and the Congo, then spread to the villages surrounding the Ebola River from which the disease takes its name. In the community, the Ebola virus is spread by human-to-human transmission, with an infection resulting from direct contact (through broken skin or mucous membranes) with the blood, secretions, organs or other bodily fluids of infected people, and indirect contact with environments contaminated by such fluids. Those who have recovered from the disease can still transmit the virus through their internal fluids such as semen for up to 61 days after recovery. Since its discovery until 2014, 27 outbreaks of EVD have been recognized, centered on central and western Equatorial Africa, totaling around 2,460 documented cases. Today, the virus poses a particular problem for healthcare workers, tourists, animal lovers and immigrants in general.

During 2014 a major eruptions occurred in West African countries involving four countries; Guinea, Liberia, Sera Leone and Mali. The hardest-hit countries are amongst the poorest in the world. They consume only recently emerged from years of conflict and civil war that have left their health systems largely destroyed or severely disabled. Immerging of numerous large outbreaks over a short period of time among these countries will be of vital consequence to non-epidemic countries in North Africa. Massive immigration to such rich countries will be an important issue in the spread of VHFs. Hence, cross borders transmission should be taken to consideration in preventing such a gargantuan disease.

Conclusion

The emergence of a haemorrhagic fever unusual in North Africa must be considered with particular attention as the epidemiological emergence; as this will cause further spread to a new population. A particular reference must be indicated to close the countries of Southern Europe and then jump to other countries of the EU. We conclude that, although the dynamics of this new invasion remain poorly understood, the emergence of pathogens is unpredictable. Emerging pathogens tend to share certain common traits and to jump from one country to another and are strongly pushed by massive population displacements and the engulfing of massive immigration. Therefore, international efforts should be combined to trace, prevent and combat the spread of these treats and global health security should be amended and enforced particularly among the countries of North Africa.

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