Letter to the Editor

Rift Valley Fever (RVF): is there a global concern on this emerging zoonotic and vector-borne disease?

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Rift Valley Fever (RVF) is a disease caused by the Rift Valley Fever virus (RVFV), which is member of the Bunyaviridae family, Phlebovirus genus. RVF a viral zoonosis that primarily affects animals but can also infect humans. This one affects mainly domestic ruminants, causing large epizootics, with high rates of lethality in young animals and abortions in infected females [1]. The virus was first identified in 1931 during an investigation into an epidemic among sheep on a farm in the Rift Valley of Kenya [2].

This disease is currently present in Africa and in the Arabian Peninsula. However, different factors, such as globalization and climate change have facilitated the introduction of the virus into areas that were previously unrelated, through the vectors of animals or mosquitoes as well as human cases [3], as recently occur with an imported case in China [4]. The consequences of its introduction depends on environmental factors, the availability of susceptible ruminants and the ability of local mosquitoes to transmit the virus [3].

In addition to animals, RVF affects humans in a highly variable degree. Manifestations can be in a wide variety of clinical signs and symptoms and compromise including hepatitis, retinitis [5], delayed-onset encephalitis, and in most cases, hemorrhagic disease.

The global fatality rate is estimated between 0.5 and 16% [3,6]. In the cases where the human patient develops with jaundice, neurological disease or hemorrhagic complications there is increased risk of death [7].

RVF is transmitted by arthropods. Vaccination helps to minimize the severity and incidence of outbreaks in the ruminant population. But the introduction of several vaccinated ruminants in areas free of this virus can trigger an outbreak and this disease can become endemic if there is a sustained use of live vaccines [8].

The presence of these outbreaks and their increase are associated with the “El Niño” phenomenon, which increase the number of mosquitoes and allow a greater spread of the disease are a matter of concern [3].

Mosquitoes are excellent vectors for RVF, mainly those from the genuses Culex and Aedes, which are vectors of a large number of viruses (dengue, chikungunya, Zika, yellow fever, equine encephalitis viruses) [9-12], with their implications for animal and human health.

RVF is considered a globally significant disease that already affects both animals and humans.

In the case of animals, especially cattle animals, this disease is characterized by a high level of abortions and lethality rates, the latter being 100% in neonates and 10% to 20% in adult animals.

Knowledge about RVF risk areas is essential to prevent and control this disease. It should be taken into account the fact that being a disease transmitted by
mosquitoes makes the association between RVF and vector dynamics and its geographical distribution.

The ecology of the vectors depends significantly on the environment, each mosquito species requires specific environmental conditions for development and survival, such as the availability of water for the eggs, the temperature for the development of the aquatic stage or vegetation for some species [13].

On 2018, WHO releases its list of priority pathogens that have the potential to cause a public health emergency, given that for them there is no, or is insufficient, countermeasures, such as drugs and vaccines that help control outbreaks. RVF was discussed and considered for inclusion in the priority list, given the fact that poses a major public health risks and further research and development is needed, including surveillance and diagnostics.

Experts considered that given their potential to cause a public health emergency and the absence of efficacious drugs and/or vaccines, there is an urgent need for accelerated research and development for RVF and other emerging and reemerging conditions [14].

As WHO warned, RVF should be watched carefully and efforts in research should lead to a better understanding and evidence-based information that would mitigate this emerging arboviral and zoonotic disease.

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