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Acute viral hemorrhage disease: A summary on new viruses

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ABSTRACT

Acute hemorrhagic disease is an important problem in medicine that can be seen in many countries, especially those in tropical world. There are many causes of acute hemorrhagic disease and the viral infection seems to be the common cause. The well-known infection is dengue, however, there are many new identified viruses that can cause acute hemorrhagic diseases. In this specific short review, the authors present and discuss on those new virus diseases that present as “acute hemorrhagic fever”.

1. Introduction

Acute febrile illness is an important medical disorder in internal medicine. Of several illnesses, acute hemorrhagic disease is an important condition with acute fever and hemorrhagic presentation. The acute hemorrhagic disease can be seen in many countries around the world with high incidence in the developing countries of tropical world. Due to the advent of biomedical science, there are new identified causes of acute hemorrhagic disease. Viral infection is an important common cause. In medicine, the well-known infection is dengue, which is caused by an arbovirus namely, dengue virus. However, there are many new identified viruses that can cause acute hemorrhagic diseases. The diseases are usually considered as new emerging viral diseases, which could be problematic situation in public health^[1,2]. In fact, those new viruses exist in our world but we just cannot detect them. For sure, those pathogenic viruses can cause severe diseases that have never been known. Those

newly identified viruses cause acute hemorrhagic fever that are hard to diagnose. In addition, those new diseases can be worldwide pandemic and the surveillance is required.

In this specific short review, the authors present and discuss on those new virus diseases that present as “acute hemorrhagic fever”.

2. Some new problematic viruses

2.1. Oropouche fever

Oropouche fever is an important disease seen at South America at present. According to a recent report by Alvarez-Falconi and Ríos Ruiz, “the clinical manifestations were fever of 38 °C, headache, muscle and joint pains, congestion of conjunctiva, nausea, vomiting, and diarrhea^[3]” and “some cases presented nose, gum and/or vaginal bleeding^[3].” The new evidence shows that this disease is strongly related to the virus namely, Iquitos virus, a mutant of Oropouche virus. The Iquitos virus is classified within the group of bunyavirus. It was firstly reported from Peru. The genetic reassortment can be seen in this virus. The Iquitos virus contains “the S and L segments of Oropouche virus and the M segment of a novel

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Simbu serogroup virus^{[4]'}. At present, the virus can be seen in many countries especially in Peru and Brazil. It can be seen in the same endemic area as dengue^[5,6], hence, misdiagnosis can be expected. The mode of transmission is believed to relate to insect. Increasing population of biting midges is proved for relationship to increasing prevalence of the virus^[7]. Of interest, in addition to the Iquitos virus, another new virus namely, Itaya is also recently reported from the endemic area of Iquitos virus in South America^[8]. This virus was also a bunyavirus with genetic reassortment background^[8]. Whether this new virus can cause acute hemorrhagic disease or not has to be further studied.

2.2. Ilesha shake

Ilesha shake is an acute febrile illness with erythema^[9–11]. It was firstly seen in Madagascar and presently seen in Africa^[9,10]. Recently, the pathogenic virus, within the genus *Orthobunyavirus* of the Bunyaviridae family, namely, Ilesha virus can be identified^[9,10]. The disease is a kind of acute hemorrhagic disease and can have additional meningoencephalitis^[9,10]. The virus can be seen in animal reservoir host^[12].

Genetically, the virus has high genetic conservation with Bunyamwera virus and Ngari virus, a new virus seen in East Africa^[9]. Focusing on the Ngari virus, it is an outcome of reassortment between Bunyamwera virus and an M segment derived from Batai virus^[13,14]. The Ngari virus can cause acute hemorrhagic fever^[13,15]. The Ngari virus in human beings was firstly reported from Senegal and the mosquito vector of this virus is identified^[16].

2.3. Severe fever with thrombocytopenia syndrome

Severe fever with thrombocytopenia syndrome is a new emerging disease^[17,18]. It is seen in East Asia. However, despite severe thrombocytopenia and high fatality, there is no hemorrhagic presentation^[19].

2.4. Zika virus infection

Zika virus infection is an important new emerging acute febrile illness^[20,21]. The virus is a *Flavivirus*^[20,21]. The clinical features of Zika virus infection is highly similar to dengue, hence, incorrect diagnosis can be frequently seen. The simple dengue IgM test can result in false positivity. This virus infection can be seen in several countries in Southeast Asia and it is already imported to Western countries^[22,23].

2.5. Dengue type 5 infection

Dengue is not a new infection. It has been well recognized cause of acute hemorrhagic fever. However, an interesting concern is the new emerging serotype 5 dengue virus. This situation was seen for a few years^[24,25]. It was firstly reported from Malaysia in "sylvatic transmission cycle"^[24,25]. It is believed to be a variant from type 4 dengue. Mustafa *et al.* noted that "the likely cause of emergence of the new serotype could be genetic recombination, natural selection and genetic bottlenecks^[24]." The clinical features of simple dengue infection (fever and triads of thrombocytopenia, atypical lymphocytosis and hemoconcentration) can be seen.

3. Conclusions

Many new viruses have been recently reported as etiologies of acute hemorrhagic fever. The new diseases can be seen around the world. It is the role of the physician to recognize and early diagnose the problem. Also, it is the role of public health workers and policies makers to set a way to correspond to those possible new emerging disease.

Conflict of interest statement

The authors report no conflict of interest.

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