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LETTER TO THE EDITOR

Manifestations of severe Rift Valley fever in Sudan

KEYWORDS

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 Sudan

Introduction

The Rift Valley fever (RVF) virus of the family *Bunyaviridae* is a cause of zoonotic viral disease.¹ Since the first isolation of the virus in the 1930s, there have been several epidemic outbreaks in the tropics, mainly in Africa, including Sudan, the largest country in Africa.^{2,3} RVF infection in humans can be acquired through mosquito bites and contact with infected animals, and vertical transmission has been reported.³ RVF can present as an uncomplicated acute febrile illness. However, severe complications, such as hemorrhagic disease, meningoencephalitis, renal failure, and blindness have been reported.^{4,5}

In this letter we describe the manifestations, morbidity, and mortality related to the recent outbreak of RVF in central Sudan. Eighteen patients (fifteen male and three female) with symptoms suggestive of RVF (fever, bleeding per orifices, jaundice) were admitted to the intensive care unit of Wad Medani Hospital during the two-month period of September–November 2007. All these patients were identified according to a strict case definition,⁶ and were confirmed to have RVF by serologic testing (IgM antibody to RVF virus). All patients were treated in the special RVF unit with strict barrier and isolation care. Antiviral agents were not available, but conservative measures such as fresh frozen plasma, blood, albumin, antibiotics, mechanical ventilation, and hemodialysis were provided as necessary.

The major clinical characteristics of RVF included a high frequency of hepatic failure, which occurred in six patients (33.3%), acute renal failure in four patients (22.2%), and hemorrhagic manifestations in five patients (27.8%). Six

patients (33.3%) presented with blindness and two patients (11.1%) had meningoencephalitis. There was more than one manifestation of severe RVF in five patients (27.8%). Eight of the patients died (44.4%). Hepato-renal failure and severe anemia due to hemorrhage were the leading causes of death in these patients (Table 1).

During 2007 many patients presented with symptoms of RVF at various hospitals in the different Sudanese provinces. Due to the lack of proper statistics, the precise number of humans infected in the outbreak of RVF in Sudan is unknown. It was estimated that the majority of the infections were subclinical or mild, occurring in persons who did not seek care. The zoonotic nature of the RVF could explain the male preponderance in this study, since it is the males who usually practice farming and care for the livestock, according to Sudanese traditions. The high case–fatality rate and the manifestations of RVF in this report are in line with the observations from neighboring Saudi Arabia.⁴ However, these were the manifestations of the acute severe form of RVF; perhaps subacute or other forms of RVF may occur in the near future. Generally, it has been estimated that only approximately 1–2% of RVF infections result in fatal hemorrhagic fever.⁷ It has been reported that significant high-prevalence clusters of RVF encompassed areas that had experienced previous epidemics of RVF.⁸

Our findings of a high rate of hepato-renal failure are consistent with previous observations.⁴ Increased liver enzymes are early markers for fatal RVF and the lesions in the liver are presumed to be the result of a direct effect of the virus, as the liver is the major site of viral replication.⁹ Thus this was a case series study and further research is needed.

Table 1 Presenting demographic and biochemical data of the Sudanese patients with acute Rift Valley fever

Characteristic	Mean (SD)
Age, years	38.7 (14.4)
Serum creatinine, mg/dl	8.9 (4.4)
Blood glucose, mg/dl	128 (14.8)
Total serum bilirubin, mg/dl	4.7 (6.3)
Aspartate aminotransferase, IU	104.5 (84.6)
Alanine aminotransferase, IU	118.1 (261.5)
Total platelets ($\times 10^9/l$)	155 (62.0)

Conflict of interest: No conflict of interest to declare.

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