Editorial

Crimean-Congo hemorrhagic fever (CCHF): An Epidemic-Prone Emerging Infectious Disease

Shahid Iqbal

Viral hemorrhagic fever (VHF) is one of the clinical illnesses posing a grave threat to humans and animals. One of the several VHFs is Crimean-Congo hemorrhagic fever (CCHF), a severe and extremely contagious,zoonotic viral disease caused by Nairovirus.[1] The CCHF viruses belong to Bunyaviridae family and classified into seven genotypes.[2] It is transmitted by the tick of Hyalomma genus.[3] The virus has been found in 31 species of Ixodidae ticks family. The reservoirs of CCHF disease are domestic and wild animals e.g livestock animals, hares and hedgehogs that harbor the tick vectors.[4] The disease is usually asymptomatic in animals but carries high mortality in humans (15-50%).[3]

The illness is prevalent in several countries in Europe, Africa, Asia, Kosovo, Albania, South Africa, Iran and Pakistan.[5] The illness is milder in South Russia with 5-10% mortality rate, but the mortality rates in the Middle East and South Asia were reported 35% and 35-50% respectively. World Health Organization (WHO) has listed Crimean-Congo hemorrhagic fever among rising illnesses for which prevention and control measures must be revitalized and intensified. As per agreement measures, 5 countries recently having the robust proof for CCHF presence are Iran, Turkey, Afghanistan, Pakistan and Tajikistan.[6]

The first CCHF case in Pakistan was reported in 1976; multiple sporadic cases and epidemic have occurred till now.[7] Infection usually occurs as sporadic cases, mostly transmitted to humans through the bite of an infected tick or from contact with the blood of infected animals, principally among abattoir workers. Person-to-person transmission can occur through contact with the virus containing secretions and blood of a patient.[8]

Humans can acquire the infection by contact with animal blood or tissues. Human-to-human transmission can also occur in hospital setups due to exposure to patient's blood and body fluids.[4] Crimean-Congo hemorrhagic fever is work-related illness for slaughterhouse employees, butchers, animal husbandry staff, livestock workers, healthcare providers and veterinarian.[9] During a survey carried out in the area of South Iran, farm animals were recognized as a cause of infection. Crimean-Congo hemorrhagic fever endemic happened through exposure to tissue and infected livestock blood.[6]

The course of CCHF can be divided into prodromal phase, hemorrhagic and convalescent phases. After a tick bite, the incubation period is from 1-6 days, while it is 5-7 days after direct contact with blood or tissues of infected animals or humans. Patients develop symptoms of the sudden onset of fever, weakness, headache, muscular pain, vomiting, hyperemia of the face and oropharynx, a hemorrhagic rash initially then ecchymoses and bleeding from the nose, throat, gastrointestinal tract and other sites.[8] In the first week of illness, there is leucopenia and thrombocytopenia. As the disease progresses, hepatomegaly along with raised liver enzymes and the renal impairment with elevated blood urea nitrogen (BUN) and serum creatinine level occurs.[3] The diagnosis of CCHF is made by polymerase chain reaction (PCR) to detect viral RNA (ribonucleic acid) and virus-specific IgM and/or IgG by ELISA (enzyme-linked immunosorbent assay).[8]

Most of CCHF patients are either asymptomatic or have a non-specific febrile illness which does not require hospitalization or treatment. A few number of patients who develop hypotension and hemorrhage are provided with supportive treatment i.e. intravenous fluids for volume replacement and fresh frozen plasma, platelets and fresh blood transfusion for coagulation abnormalities.[8] For high-grade fever, paracetamol can be given and there is the recommendation for use of anti-ulcer drugs for gastrointestinal bleeding. Antiviral treatment with Ribavirin may be tried. Postexposure prophylaxis with ribavirin in high-risk setting may be considered.[10] Development of the vaccine for prevention of CCHF is in progress.[11]

Factors mostly responsible for the spread of the virus in the domestic cattle are the unhygienic condition of slaughterhouses and breeding places, failure to understand the significance of animal sanitation and their protection from ticks and breeding them near the wild animals. Inadequate knowledge regarding tick-borne illness among butchers, general public and

Sharif Medical & Dental College, Sharif Medical City. Sharif Medical City Road, Off Raiwind Road, Jati Umra, Lahore 54000, Pakistan.

Correspondence: Dr. Muhammad Shahid Iqbal
Professor Department of Community Medicine
Sharif Medical & Dental College
E-mail: shahid.iqbal@sharifmedicalcity.org

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breeders is the leading cause of its spread among humans. Steps are required to uphold sanitation in pre-designated markets, ensuring that animals are free from the ticks via utilizing acaricides (pesticides that kill mites and ticks) observed to be free from tick for 14 days before being slaughtered. Butchers must be educated to take protective measures while slaughtering and handling the meat of animals. Biosafety measures are of immense importance for the prevention of nosocomial infections. Universal precautions must be exercised in hospitals with ample stock of ribavirin. Special preventive measures are direly needed on the occasion of Eid-ul-Azha. Safe burial practices for the infected deceased and safe disposal of animal's vestiges needs to be extremely emphasized.[1]

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