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An Overview of Crimean Congo Haemorrhagic Fever

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ABSTRACT

Crimean-Congo Hemorrhagic Fever (CCHF), caused by CCHFV virus (CCHFV), poses a serious threat to human health with a transmission cycle involving ticks and vertebrate hosts. This article explores the etiology, epidemiology, and prevalence of CCHF, specifically in Pakistan. The role of Eid-ul-Adha in the spread of the disease was emphasized, and the important interaction between humans and animals during slaughter was emphasized. The zoonotic importance of CCHF emphasizes the need for preventive measures, as ticks play an important role in the transmission of this disease.

Introduction:

Crimean-Congo Hemorrhagic Fever (CCHF), also known as Congo disease, is a severe illness caused by the CCHF virus (CCHFV), belonging to the Nairovirus genus and Bunyaviridae family. This zoonotic disease poses a significant threat to human health, with a complex transmission cycle involving invertebrate hosts (ticks) and vertebrate hosts (animals and humans) (1, 4, 5, 8).

Epidemiology

Congo disease is distributed across several continents, including Africa, Asia, and parts of Europe. The virus is maintained in nature through a tick-vertebrate-tick cycle. Humans usually get infected through the bite of infected ticks or direct contact with blood or tissues from infected animals (1, 8).

In Pakistan, Congo disease has been a growing concern, particularly in rural areas where human-animal interactions are higher. Livestock, such as goats and cattle, can serve as amplifying hosts, contributing to the spread of the virus. In Pakistan, there is a 2.7% seroprevalence of CCHF (5, 7).

Ticks, particularly those of the Hyalomma genus, play a central role in the transmission of CCHFV. They act as both vectors and reservoirs for the virus. Animal herders, livestock workers, and slaughterhouse workers in endemic areas are at high risk of CCHF. Eid-ul-Adha plays a significant role in disease spread during this festival creating an environment conducive to the transmission of the virus. Sacrifices often involve close human-animal contact, facilitating the spread of the disease among livestock and potentially to humans (7, 8).

Transmission of virus

Transmission of the virus occurs through a cascade of events. Ticks acquire the virus by feeding on infected animals, and the virus is subsequently transmitted from infected ticks to uninfected ticks during co-feeding. The virus can then be transmitted from ticks to animals and between animals, creating a complex transmission network (6, 7).

Pathogenesis in animals and clinical signs in humans

The pathogenesis of Congo disease varies between animals and humans. In animals, the disease can be subclinical or severe and cause serious damage to the livestock. In humans, the virus can cause severe fever, dizziness, neck pain, headache, stiffness, back pain, sore eyes, and photophobia along with high mortality (1, 4, 5).

Zoonotic importance

Congo disease is of paramount zoonotic importance, involving a spillover of the virus from animals to humans. The potential for human-to-human transmission poses a considerable public health risk. Understanding the dynamics of this zoonosis is critical for implementing preventive measures (1, 2, 5).

Treatment and prevention

There is currently no specific treatment for Congo disease. Support and early intervention are crucial in the treatment of human diseases. Prevention strategies include avoiding contact with infected animals, using protection when handling animals, and using effective tick control. Congo disease, a zoonotic disease, requires extensive research and effective interventions. Understanding the complexity of the disease, its transmission, and the role of various factors, including traditions such as Eid-ul-Adha, are important for improving prevention and good management (6).

References

[1] Bente, D. A., Forrester, N. L., Watts, D. M., McAuley, A. J., Whitehouse, C. A., & Bray, M. (2013). Crimean-Congo hemorrhagic fever: history, epidemiology, pathogenesis, clinical syndrome and genetic diversity. Antiviral Research, 100(1), 159-189.

[2] Ergonul, O. (2006). Crimean-Congo hemorrhagic fever. The Lancet Infectious Diseases, 6(4), 203-214.

[3] Papa, A., Tsergouli, K., & Tsioka, K. (2017). Crimean-Congo Hemorrhagic Fever: Tick-Host-Virus Interactions. Frontiers in Cellular and Infection Microbiology, 7, 213.

[4] Spengler, J. R., & Bergeron, É. (2016). Crimean-Congo hemorrhagic fever. Journal of Virology, 90(17), 7944-7953.

[5] WHO. (2021). Crimean-Congo hemorrhagic fever (CCHF) – Fact Sheet. World Health Organization.

[6] Hasan, Z., & Mahmood, F. (2015). Crimean-Congo Hemorrhagic Fever: A Global Perspective. Vector-Borne and Zoonotic Diseases, 15(9), 503-513.

[7] Kandeel, A., & Ergonul, O. (2018). Zoonotic Transmission of Crimean-Congo Hemorrhagic Fever Virus in the Field. Vector-Borne and Zoonotic Diseases, 18(1), 3-10.

[8] Hoogstraal, H. (1979). The epidemiology of tick-borne Crimean-Congo hemorrhagic fever in Asia, Europe, and Africa. Journal of Medical Entomology, 15(4), 307-41.

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