

Potential of Crimean-Congo Hemorrhagic Fever outbreak during Eid-UI-Adha Islamic festival and COVID-19 pandemic in Pakistan

To the Editor,

Pakistan's healthcare system is currently dealing with the worst Coronavirus pandemic, with 221K confirmed cases and 4551 deaths so far, while the country needs to prepare for another significant public health threat from the tropically neglected Crimean-Congo Hemorrhagic Fever (CCHF).^{1,2} With the Islamic festival of Eid-UI-Adha approaching,³ there is an enormous threat of the CCHF outbreak in Pakistan.⁴

CCHF is a zoonotic disease caused by the *Nairovirus*, and humans are infected with *Ixodidae* tick bites (mainly *Hyalomma* spp.) or by contact with the blood or tissues of viremic patients or animals.⁵ CCHF is endemic in Pakistan, and most cases occur at and around the time of the Eid-UI-Adha Islamic festival, which commemorates the sacrifice of livestock.^{4,6} Before Eid-UI-Adha in Pakistan, livestock is brought down to the urban areas from the rural parts of the country. Animals are housed in open spaces and private residences until they are slaughtered.⁷ This provides ample contact time between humans and animals for the transmission of the virus.

The comparison of trends of CCHF cases showed that 58% and 62% of CCHFV positive cases were found around the Eid-UI-Adha season in 2013 and 2014, respectively.⁸ This trend may be exaggerated even further this year as the attention of our health sector is entirely focused on COVID-19.

Two CCHF cases have recently been reported to the Jinnah Postgraduate Medical Center in Karachi,⁹ which shows that new cases have already started emerging in Pakistan. World Health Organization Eastern Mediterranean Regional Office has identified several risk factors responsible for the emergence of arboviral and zoonotic diseases in the background of COVID-19. These include worsening climatic conditions, humanitarian emergencies, conflicts, fragile health systems, weak surveillance, and inadequate laboratory capabilities, domesticating, and slaughtering animals during religious festivals.¹⁰

The population of Pakistan is at a very high risk of developing CCHF due to several factors. First, the underdeveloped healthcare system is currently not prepared to face challenges of this nature, and healthcare professionals and medical institutions are not sufficiently equipped to diagnose, manage, and prevent CCHF¹¹ accurately. Secondly, a significant proportion of the general public is

unaware of the spread and control of the vector, and, finally, the lack of quarantine areas and policies to control infection add to the current health crisis.^{11,12}

The COVID-19 pandemic has brutally exposed the under-staffed and under-funded, fragile nature of Pakistan's healthcare system, with insufficient specific diagnostic tests, and late detection making it difficult to stop the spread of infectious diseases, including both COVID-19 and CCHF.¹³ According to the Economic Survey of Pakistan 2018 to 2019, there is one doctor available for 963 persons and one hospital bed for 1608 individuals, with a shallow scale of availability of intensive care units.¹⁴





There is a significant need to regulate the migration activities of people and animals from CCHF endemic areas and to set up a registry and monitoring network to monitor the movement of livestock across borders and different provinces in Pakistan. Media can play a crucial role in providing knowledge of the modes of transmission and symptoms of CCHF, providing information on the use of appropriate clothing to avoid contact with ticks during the washing and pesticide spraying of animals, while protecting them from tick attacks. The government must refocus its energies and provide sufficient funding to vaccinate agricultural livestock before it reaches the market for sale on the occasion of the Eid-UI Adha.¹⁵ There should be training programs for physicians and health workers to enhance their awareness regarding early diagnosis, management, and personal protection. Laboratory capacity should be strengthened at least in tertiary care and teaching hospitals. Integration between clinicians, microbiologists, and public health professionals is necessary to manage all aspects of the outbreak. Additionally, there should be an increased communication between human and animal health experts. Only intersectoral collaborative efforts, along with effective community participation, can help contain these two diseases together.

CONFLICT OF INTERESTS

The authors declare that there are no conflict of interests.

AUTHOR CONTRIBUTIONS

AA conceived the idea, ARS, MJT, and AA retrieved the data, did write up of letter and finally JD reviewed and provided her inputs. All authors approved the final version of manuscript.

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REFERENCES

- World Health Organization W. Global- Pakistan. <https://covid19.who.int/region/emro/country/pk>. Accessed July 3, 2020.
- National Institute of Health I, Pakistan. SEASONAL AWARENESS AND ALERT LETTER (SAAL). <https://www.nih.org.pk/wp-content/uploads/2020/07/48th-Issue-SAAL-final-for-Printing.pdf>
- AS TaD. Eid al-Adha in Pakistan. <https://www.timeanddate.com/holidays/pakistan/eid-ul-azha>
- Mallhi TH, Khan YH, Sarriff A, Khan AH. Crimean-Congo haemorrhagic fever virus and Eid-UI-Adha festival in Pakistan. *Lancet Infect Dis*. 2016;16(12):1332-1333.
- Whitehouse CA. Crimean-Congo hemorrhagic fever. *Antiviral Res*. 2004;64(3):145-160.
- Hoogstraal H. The epidemiology of tick-borne Crimean-Congo hemorrhagic fever in Asia, Europe, and Africa. *J Med Entomol*. 1979; 15(4):307-417.
- Rai MA, Khanani MR, Warrach HJ, Hayat A, Ali SH. Crimean-Congo hemorrhagic fever in Pakistan. *J Med Virol*. 2008;80(6): 1004-1006.
- Leblebicioglu H, Sunbul M, Memish ZA, et al. Consensus report: preventive measures for Crimean-Congo hemorrhagic fever during Eid-al-Adha festival. *Int J Infect Dis*. 2015;38:9-15.
- News T JPMC gets two Congo fever patients within a week. <https://www.thenews.com.pk/print/634450-jpmc-gets-two-congo-fever-patients-within-a-week>
- World Health Organization W. Weekly Epidemiological Monitor. <https://reliefweb.int/sites/reliefweb.int/files/resources/22244220201318-eng.pdf>
- Ahmed A, Tanveer M, Saqlain M, Khan GM. Knowledge, perception and attitude about Crimean Congo Hemorrhagic Fever (CCHF) among medical and pharmacy students of Pakistan. *BMC public health*. 2018; 18(1):1333.
- Alam MM, Khurshid A, Sharif S, et al. Genetic analysis and epidemiology of Crimean Congo hemorrhagic fever viruses in Baluchistan province of Pakistan. *BMC Infect Dis*. 2013;13(1):1-8.
- Haqqi A, Awan UA, Ali M, Saqib MAN, Ahmed H, Afzal MS. COVID-19 and dengue virus co-epidemics in Pakistan: a dangerous combination for overburdened healthcare system. *J Med Virol*. 2020: jmv.26144.
- 2018-19 PES. Health and Nutrition. http://www.finance.gov.pk/survey/chapters_19/11-Health%20and%20Nutrition.pdf
- Smego RA Jr, Sarwari AR, Siddiqui AR. Crimean-Congo hemorrhagic fever: prevention and control limitations in a resource-poor country. *Clin Infect Dis*. 2004;38(12):1731-1735.