

EDITORIAL

Human Metapneumovirus (HMPV) Infection: An Emerging Threat

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Human metapneumovirus (hMPV) is an RNA virus which is newly identified paramyxovirus that appears to be one of the most significant and common viral infections in humans. The virus, first isolated in 2001 from nasopharyngeal aspirates (NPAs) obtained from young children in The Netherlands, has gained attention due to its significant role in respiratory illnesses among the children, the elderly, and immune compromised individuals.¹ However, in many regions, including Bangladesh, the awareness, research, and clinical attention dedicated to HMPV remain limited. HMPV has been implicated in a wide array of respiratory diseases, ranging from mild cold-like symptoms to severe conditions such as bronchiolitis and pneumonia. Although data on HMPV's epidemiology in Bangladesh remains scarce, studies in neighbouring regions and countries highlight its potential to cause significant disease burden.²

In Bangladesh, where respiratory infections are among the leading causes of morbidity and mortality, the presence of HMPV should be considered as a contributing factor to the heavy toll of ARTIs. According to the World Health Organization (WHO), respiratory infections account for approximately 16-18% of all deaths in Bangladesh, with children under five years old being especially vulnerable. The climate in Bangladesh which is marked by a tropical monsoon and high humidity, creates conditions that may facilitate the transmission of respiratory viruses, including HMPV. A few regional studies suggest that HMPV prevalence is particularly high during the rainy season, overlapping with peaks of respiratory infection rates. However, the lack of systematic surveillance and diagnostic infrastructure hampers comprehensive data collection and analysis of the virus's true prevalence in the population.^{3,4}

The clinical presentation of HMPV infections in Bangladesh is likely to resemble that seen in other tropical and subtropical regions, with the virus predominantly affecting children under five years old, elderly individuals, and those with underlying health conditions. Clinical symptoms can range from mild upper respiratory tract infections to severe lower respiratory tract infections such as bronchiolitis, pneumonia, and respiratory failure. In children, symptoms typically include a cough, fever, wheezing, and shortness of breath. In severe cases, hospitalization may be required for oxygen therapy and mechanical ventilation. In elderly patients or those with chronic comorbidities such as asthma or heart disease, HMPV can exacerbate pre-existing conditions and lead to prolonged hospital stays.⁵ The diagnosis of HMPV infection remains a challenge in Bangladesh due to limited access to advanced diagnostic methods such as PCR and viral culture. Traditional diagnostic tools such as rapid antigen tests and enzyme-linked immunosorbent assays (ELISA) are available but have variable sensitivity and specificity.

Despite its potential public health significance, HMPV remains largely underreported in Bangladesh. One reason for this oversight is the absence of routine surveillance systems for respiratory viruses. In rural and remote areas, healthcare facilities are often ill-equipped to conduct molecular testing for HMPV, meaning that cases may go undiagnosed or be misclassified. A key

issue is the lack of awareness among clinicians about HMPV as a possible cause of respiratory infections. Enhancing the capacity for molecular diagnosis, improving clinicians' knowledge of the virus, and establishing an integrated surveillance system to monitor trends in respiratory viruses could improve detection rates and treatment outcomes.

Currently, there are no specific antiviral therapies or vaccines for HMPV. Treatment is largely supportive, focusing on managing symptoms such as fever, dehydration, and respiratory distress. The mainstay of management for severe cases is oxygen therapy and, in some instances, mechanical ventilation. Preventive strategies for HMPV include infection control measures, especially in healthcare settings and crowded places, which are critical in reducing transmission. Public health initiatives to educate the population about the importance of hand hygiene, respiratory etiquette, and vaccination (for preventable diseases like influenza and pneumonia) may indirectly reduce the burden of HMPV infection as well.

There is a pressing need for comprehensive epidemiological studies on HMPV in Bangladesh. Understanding the seasonal patterns, genetic diversity, and clinical outcomes of HMPV infection in this population will provide valuable insights into the virus's role in respiratory diseases. Additionally, efforts to develop cost-effective and rapid diagnostic methods are crucial for improving HMPV detection, especially in rural healthcare settings.

HMPV is a significant but under-recognized pathogen in Bangladesh's landscape of respiratory infections. Despite limited awareness and diagnostic capabilities, there is strong evidence suggesting that HMPV is a substantial contributor to respiratory morbidity, particularly among vulnerable populations. Strengthening surveillance, improving diagnostic capacity, and increasing clinical awareness will be essential steps toward mitigating the burden of HMPV infection in Bangladesh.

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