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EDITORIAL

Surging Human metapneumovirus (hMPV) cases: Do we need to be worried?

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Acute respiratory tract infections (ARTIs) cause high morbidity and mortality in humans and are a significant threat to public health. [1] Lower respiratory tract infections (LRTIs) are associated with ARTIs [2] and are caused primarily by a coronavirus, influenza virus, and human respiratory syncytial virus (hRSV). The discovery of human metapneumovirus (hMPV) dates back to 2001, when scientists first discovered it as a novel virus causative agent for ARTIs. [3] hMPV is a common cause of respiratory disease spreading via respiratory droplets in children, adults, elderly, and immunocompromised patients and has been found across the globe.

An increased number of hMPV cases in northern China was reported at the end of 2024, specifically among children, according to local authorities. The country's Centre for Disease Control (CDC) warned to take proper precautionary measures to maintain health and hygiene. There is an online exaggeration of overwhelmed hospitals, uncertainties, and dreadful situations, such as another severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) like pandemic, which the authorities have condemned. Malaysia recorded over 300 hMPV cases, and India also reported a few instances of hMPV, but there is no need to worry or panic. Generally, there is a surge of pulmonary infections in winter, which follows the same trend as earlier respiratory infections.

Signs and symptoms include cough, fever, sore throat, runny or stuffy nose, body ache, and headache. For some individuals, it causes severe symptoms like pneumonia, bronchiolitis, or bronchitis, which leads to wheezing, difficulty breathing, chest pain, dizziness, severe fatigue, dehydration, or a persistent fever that does not improve. [4] Lower respiratory tract infection causes bronchiolitis, acute asthma exacerbations, croup, and pneumonia in children. Gastrointestinal symptoms such as diarrhoea, nausea, and vomiting are reported mainly in aged individuals with comorbid conditions, i.e. >65 years of age, and immunocompromised conditions such as HIV and cancer, patients, etc.

Generally, the incubation period of hMPV ranges between 3 to 5 days; afterwards, the virus quickly spreads into the respiratory tract. Nine proteins are synthesised by eight hMPV genes responsible for host infection. [5] Transmembrane fusion in the host cell is mediated via attachment glycoprotein (G) and the fusion glycoprotein (F) through integrins. Replication starts in the host cell after the entry of the viral nucleocapsid. [5, 6] Inflammatory responses arise from interleukin-6 (IL-6),

interferon-alpha (IFN-alpha), tumour necrosis factor-alpha (TNF-alpha), interleukin-2 (IL-2), and macrophage inflammatory protein infiltration in the peribronchiolar and perivascular areas.

Molecular detection of hMPV is performed by reverse transcription polymerase chain reaction (RT-PCR), real-time quantitative reverse transcription polymerase chain reaction (RT-qPCR), and reverse transcription loop-mediated isothermal amplification (RT-LAMP), etc.

According to WHO, infants and children under 5 years are more susceptible to hMPV infections, while other age groups and comorbidities, e.g. immunosuppression, chronic obstructive pulmonary disease (COPD) and asthma, worsen the condition. [4]

Over-the-counter drugs may be used to treat pain, fever, stuffy nose, and cough, but it is strongly recommended that rest and staying hydrated be the primary treatment. Prevention strategies include almost similar protocols observed during the Coronavirus disease 2019 (COVID-19) pandemic, such as wearing a mask in public, covering the nose and mouth with a tissue or bent elbow when coughing or sneezing, cleaning hands with soap or alcohol-based sanitisers, improving ventilation in the room, and avoiding touching eyes, nose, or mouth if the hand is not washed or sanitised.

hMPV is a long-established virus, so immunity from previous infections already exists in the global population. When we compare hMPV infection with COVID-19 pandemic situations, it stands nowhere, as SARS-CoV-2 is a coronavirus that causes COVID-19, which has never infected humans earlier. Currently, there is no approved antiviral medicine for hMPV.

Patients affected by hMPV usually start to feel better within a few days. However, if the condition deteriorates, it necessitates the intervention of a physician. Individuals with comorbidities who are at high risk should consult their physician promptly rather than waiting for the symptoms to worsen. Cases requiring hospitalisation are relatively uncommon, and supplementary oxygen can aid in early recovery if oxygen saturation levels drop. [4]

Although there are no signs of panic regarding hMPV, it remains one of the infectious viruses causing ARTIs today, continuously posing substantial economic burdens. As of now, no vaccines or antiviral medicines are available to treat hMPV infection; rapid identification and precautionary measures are crucial to prevent disease outbreaks.

Regards,

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