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Understanding HMPV: Symptoms, Transmission, and Diagnosis

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Abstract: ***HMPV virus is a new virus that slightly outbreak by worldwide. After 5 years the occurred of corona virus, again entry of another virus similar to that is HMPV. The symptoms are similar to that include common cold, cough, bronchitis, fever, shortness of breath, Pneumonia, upper and lower respiratory tract infections. It can be diagnosed by using RAP-PCR (RAA arbitrarily primed PCR). It was first identified in Netherlands by Bernadette G. Van den Hoogen and her colleagues. The genomic sequencing of HMPV is closely related to the AMPV (Avian metapneumovirus). It was affected by all aged group persons. And easy rapid development in weak immune system persons. HMPV has been shown to circulate mostly during winter and early spring seasons, due to its favourable temperature for the growth of bacteria and easy transmission from one person to another. It should be transmitted by close contact with the secretions of infected persons.***

Keywords: HMPV Virus, respiratory infections, symptoms, transmission, diagnosis

History of occurrence in worldwide:

Netherlands: The first case occur in Netherland in 2001. And the virus first isolated by the scientist Bernadette G. Van den Hoogen and her colleagues. The virus first detected in the respiratory secretions of 28 young children.

China: According to Chinese central for disease control and prevention have not stated there is an outbreak of HMPV.
Chinese statistics indicate that multiple flue illness led by influenza.

Malaysia: The country of health care of Malaysia saw 327 cases in 2024. And also, hospitalization also increases.

Kazakhstan: Ministry of health of the republic of Kazakhstan has reported 30 cases of HMPV.

Symptoms: Cold, cough, Shortness of breath, bronchiolitis and pneumonia, Fever, Cyanosis (Bluish skin, lips, or nails)

Transmission:
It should be transmitted by close contact with the virus infected person.
And sharing the things with ill person.
And it can be easily transmitted in winter and spring seasons and occurrence is also in that season.

Genetic sequences of HMPV:
The genetic sequence was identified by GenBank accession numbers for the sequence generated during the study are AY532377 to AY532381. Phylogenetic analysis based on a 216-nuucleotide fragment of the M gene demonstrated genetic heterogeneity of the Indian HMPV viral isolates with 100% bootstrap support. The Indian isolates (INDHMPV3) was separated from other species isolates, forming a separate subgroup.

Preventive Measures:
- Measures include frequent handwashing with soap and water.
- Wear masks while going to outside.
- Keep away from the ill persons. Ex; Fever, cold, cough.

What HMPV does to the body:
HMPV infects some cellular pathways like nose and lung. HMPV is thought to attach to the target cells via the glycoprotein (G) protein interactions with heparin sulphate and glycosaminoglycans. The G protein has ability to inhibit the INF 1 response. The authors describe the inhibition of INF response, detecting important changes in molecules involved in the recruitment of neutrophils such as; CCL3, CCL4, VEGF, TNF, IL-17, and CXCL2. HMPV fusion protein encodes an RGD(Arg-Gly-Asp) that engages RGD binding integrating as cellular receptors. That HMPV activates the TSLP pathways and promote the recruitment of polymorphonuclear cells (PMNS) that secrete cytokines such as IL-13 and IL-5 which leads to poor T cell activation. That promotes peribronchiolar and perivascular infiltration and chronic inflammatory infections.

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