

Clinical features and Management of Human Metapneumo Virus Infection

DR ARAVIND R

HOD INFECTIOUS DISEASES

GMC THIRUVANANTHAPURAM

Background

- ▶ hMPV-cause upper and lower respiratory tract infections of all age groups, but symptomatic disease occur in young children or older adults.
- ▶ In children with ARI, hMPV detected in 5 to 15%,most commonly in children<1yr.
- ▶ Seroprevalence is almost 90%.Hence in adults it is re-infection.

Human Metapneumovirus and Lower Respiratory Tract Disease in Otherwise Healthy Infants and Children

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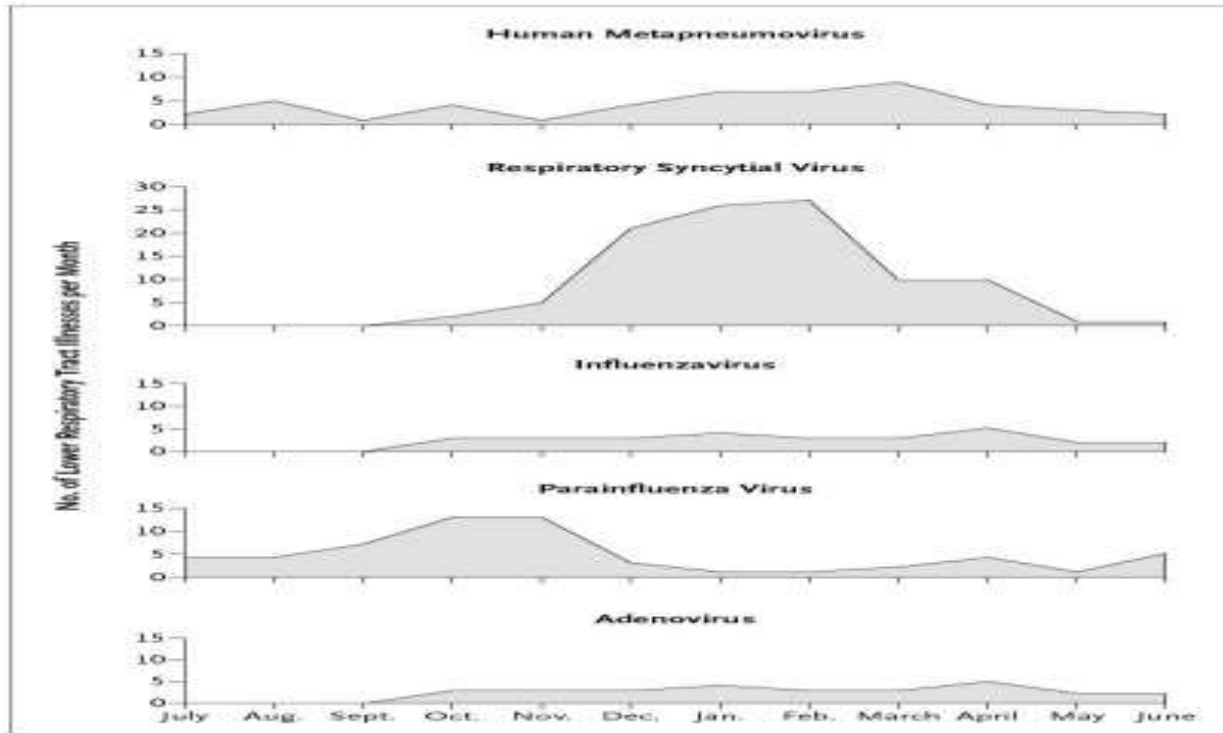
The NEW ENGLAND
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- ▶ In a large, prospective study of children with lower respiratory tract illness, human metapneumovirus was identified in 49 of 248 specimens (20 percent) that were negative for other pathogenic viruses
- ▶ The mean age of the infected children was 11.6 months, and 59 percent had symptoms of bronchiolitis
- ▶ This virus was isolated only rarely from asymptomatic children
- ▶ Human metapneumovirus infection is a leading cause of respiratory tract infection in young children
- ▶ Most of these illnesses occur from December through April

Epidemiologic Pattern of Lower Respiratory Tract Infections with Human Metapneumovirus and Other Viruses



Williams, J. et al. N Engl J Med 2004;350:443-450

Clinical Features of 49 Children with Human Metapneumovirus Infection of the Lower Respiratory Tract

Table 1. Clinical Features of 49 Children with Human Metapneumovirus Infection of the Lower Respiratory Tract.

Feature	Percent
Symptoms	
Cough	90
Coryza	88
Fever	52
Irritability	43
Anorexia	33
Wheezing	22
Diarrhea	17
Vomiting	10
Signs	
Rhinitis	77
Wheezing	52
Abnormal tympanic membrane	51
Pharyngitis	39
Rhonchi	20
Rales	8

Symptom profile	%
Cough	68-90
Rhinitis	44-77
Fever	52-86
Wheezing	51-56

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Mean Age at Onset and Clinical Diagnoses of Lower Respiratory Tract Infections Caused by Human Metapneumovirus, as Compared with Other Respiratory Viruses

Table 2. Mean Age at Onset and Clinical Diagnoses of Lower Respiratory Tract Infections Caused by Human Metapneumovirus, as Compared with Other Respiratory Viruses.*

Virus	No. of Patients	Mean Age	P Value	Diagnosis				P Value
				Bron- chiolitis	Croup	Pneu- monia	Exacerbation of Asthma	
		<i>mo</i>				<i>percent</i>		
Human metapneumovirus	49	11.6	—	59	18	8	14	—
Respiratory syncytial virus	103	13.0	0.24	65	11	21	3	0.009
Parainfluenza virus	58	15.1	0.008	28	64	7	2	<0.001
Influenzavirus	32	20.0	0.005	22	41	28	0	<0.001
Adenovirus	28	10.9	0.13	61	21	14	4	0.48

* Because of rounding, percentages may not total 100.

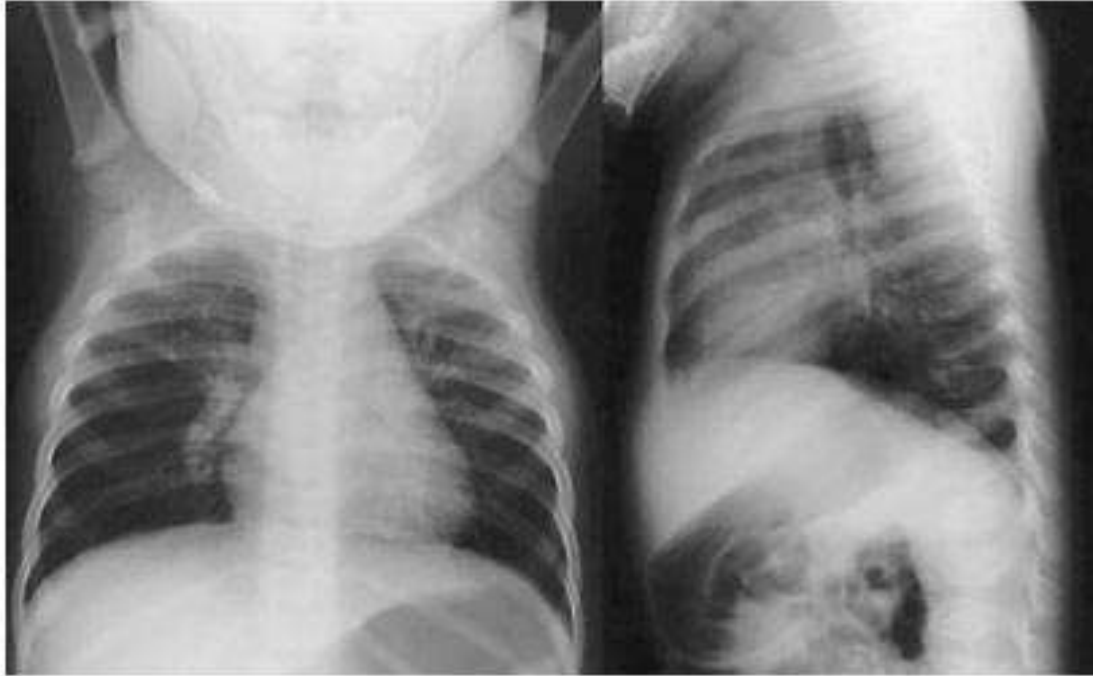
Human metapneumovirus infection among children in Taiwan: a comparison of clinical manifestations with other virus-associated respiratory tract infections

Laboratory data

WBC/mm ³	11 330 ± 4616	10 663 ± 4470	0.665
<3000/mm ³ , no. (%)	0	4 (11.8)	0.042
Absolute neutrophil count/mm ³	6099 ± 4213	6688 ± 3339	0.394
Absolute lymphocyte count/mm ³	3891 ± 2879	2584 ± 2025	0.03
Hb (g/L)	11.5 ± 1.1	12.2 ± 1.2	0.057
Platelet ×10 ³ /mm ³	344.2 ± 141.2	291.5 ± 140.4	0.1
CRP (mg/L)	30.2 ± 37.0	29.8 ± 32.2	0.862

Chest X-ray	n = 29	n = 27	
Normal, no. (%)	4 (13.8)	4 (14.8)	0.913
Hyperinflation, no. (%)	8 (27.6)	4 (14.8)	0.244
Increasing interstitial infiltrate, no. (%)	17 (58.6)	17 (63.0)	0.74

Chest Radiograph Obtained in a Six-Month-Old Infant with Human Metapneumovirus Bronchiolitis

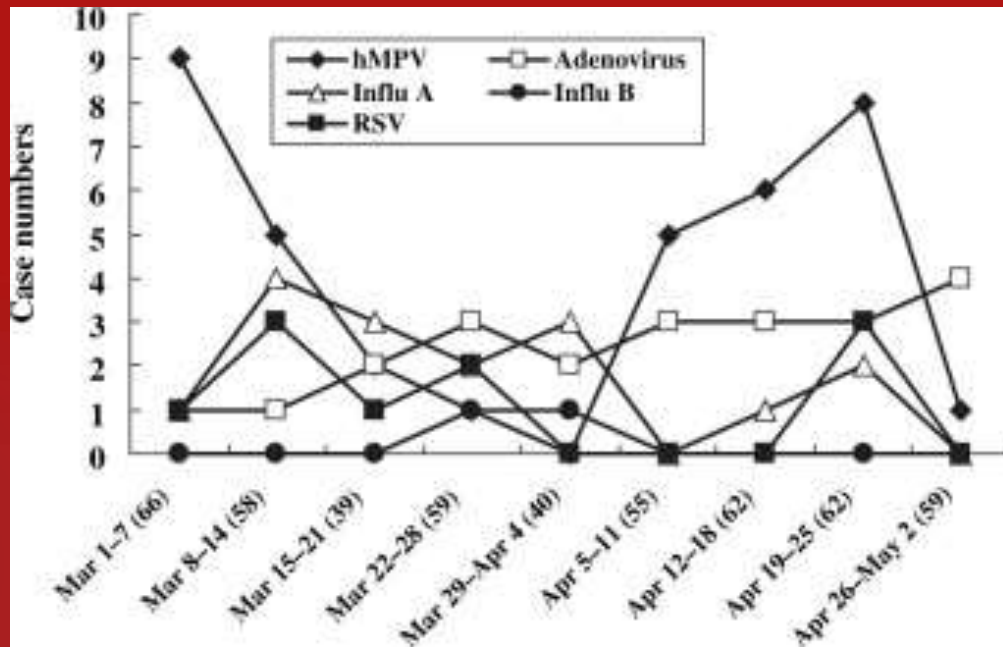


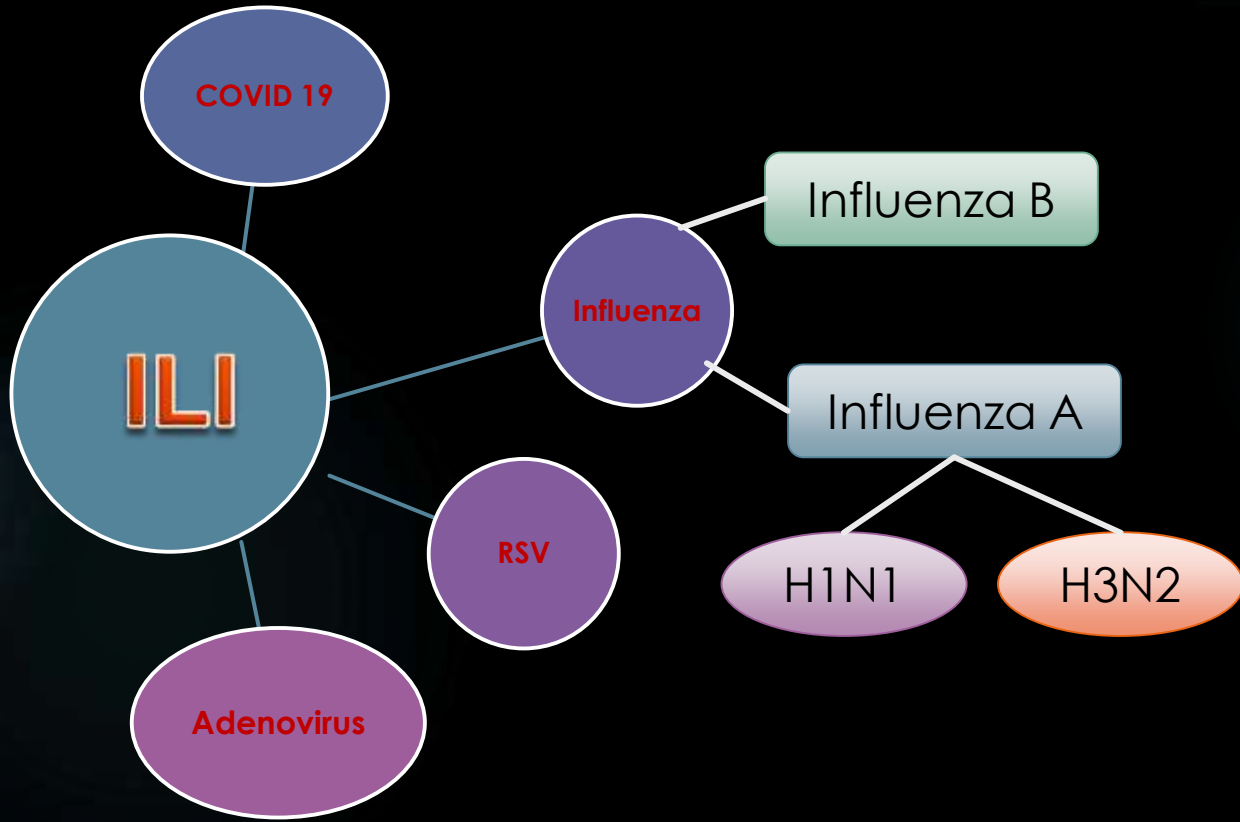
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hMPV

Myco
plasma

Combined approach to ILI

Sr No	Category	Chief Symptoms	Swab Collection	Treatment
1	A	Mild Fever(<38 C), Cough, Throat irritation, bodyache, headache, diarrhoea & vomiting	Test for COVID 19	Monitor for red flag signs and reclassify every 24-48 hrs based on symptoms.
2	B B1	In addition to above symptoms Fever >38 C, severe sore throat, running nose, cough.	Test for COVID 19	Monitor for red flag signs+ Oseltamivir if COVID test is negative.
	B2	Cat A in those with co-morbidities .	Test for COVID 19	.Monitor for red flag signs+ Oseltamivir. If COVID test is negative. For highest risk category like cancer chemotherapy with B1 symptoms, early remdesivir may be considered if COVID positive.
3	C	In addition to above symptoms- breathlessness, Chest pain, hemoptysis, hypotension, bluish discoloration of nails, and in children irritation & drowsiness.	Test for COVID 19 and influenza.	Hospitalization.+oseltamivir.If COVID positive, treatment as per Kerala State Guidelines.

Red Flag signs and treatment

**ALTERED SENSORIUM
BREATHLESSNESS
DROWSINESS
CHEST PAIN
HAEMOPTYSIS
EXCESSIVE FATIGUABILITY
SYNCOPE
PALPITATION**

Bronchiolitis

Asthma Exacerbation

Pneumonia

ARDS

CHECK LIST FOR TELEPHONIC MONITORING AND SELF MONITORING OF CAT B1 AND B2 ILI PATIENTS

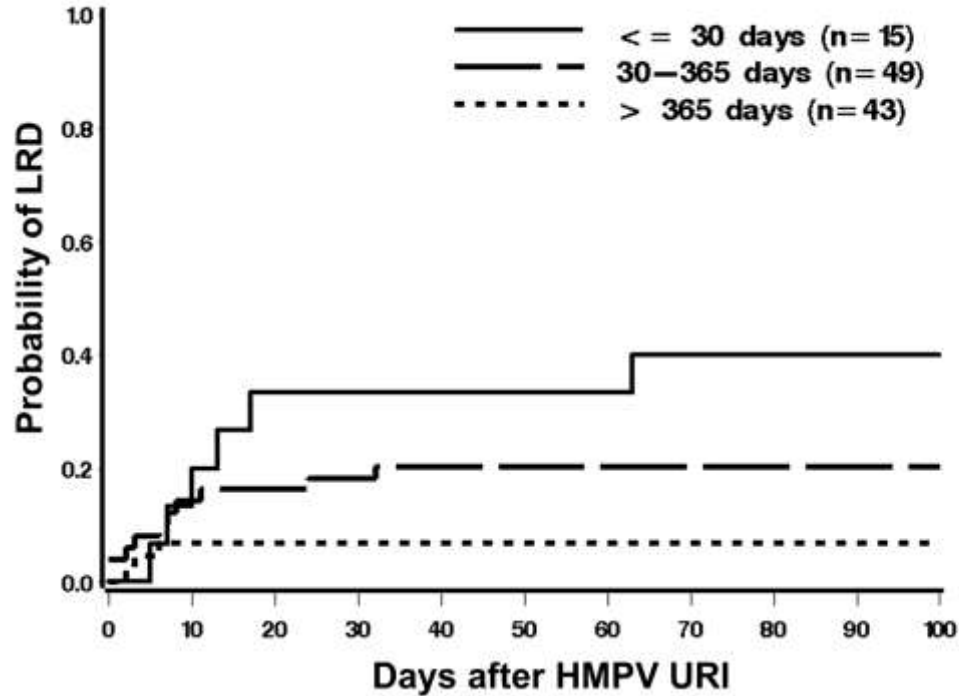
Fever	Yes	No
Altered <u>sensorium</u>	Yes	No
Breathlessness	Yes	No
Chest pain	Yes	No
Drowsiness	Yes	No
<u>Haemoptysis</u>	Yes	No
Excessive <u>fatiguability</u>	Yes	No
Syncope	Yes	No
Palpitation	Yes	No
Pulse rate > 100/Min	Yes	No
SpO ₂ ≤ 94%	Yes	No
SBC < 25 sec	Yes	No

Transmission dynamics-Prevention

- ▶ Incubation Period-5 to 9 days
- ▶ Contact and droplet precautions.
- ▶ Enveloped virus-soap and water is very effective.
- ▶ HCA outbreaks-long-term care facilities etc –secondary attack rates of 34 to 72%.
- ▶ Live and subunit vaccines in preclinical stage based on recombinant Hmpv F protein.

Human Metapneumovirus Infections in Hematopoietic Cell Transplant Recipients: Seasonality and Factors Associated with Progression to Lower Respiratory Tract Disease

Probability of progression to LRD by days after transplantation



In HSCT,
60% progression to
LRTI
20% Mortality

In Lung transplant,
At one yr
33% CLAD





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Human Metapneumovirus Infections during COVID-19 Pandemic, Spain

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the Omicron variant. Patients in this outbreak were older than usual and showed more hypoxia and pneumonia, longer length of stay, and greater need for intensive care.

Clinical data	2021, n = 48	2005-2020, n = 498	OR (95% CI)	p value
Age, mo	22 ±15.9	13 ±17.2	NA	0.002
Hypoxia, oxygen saturation <93%, no. (%)	41 (85.4)	331 (66.5)	3.9 (1.4-9.0)	0.002
Chest infiltrate, no. (%)	34 (70.8)	184 (36.9)	10.2 (3.1-32.9)	<0.001
Viral co-infection, no. (%)	19 (39.6)	208 (41.8)	NA	0.632
Wheezing episode	8 (16.7)	288 (57.8)	NA	NA
Bronchiolitis	13 (27.1)	144 (28.9)	NA	NA
Pneumonia	17 (35.4)	44 (8.8)	NA	NA

Clinical data	2021, n = 48	2005-2020, n = 498	OR (95% CI)	p value
Outcome				
Duration of stay, d	6.8 ±4.8	4.6 ±7.1	NA	0.004
Duration of fever, d	3.9 ±2.4	2.7 ±1.8	NA	0.001
Duration of hypoxia, d	6.2 ±4.2	2.9 ±2.1	NA	<0.001
PICU admission, no. (%)	7 (14.6)	13 (2.6)	5.1 (1.8-8.0)	0.004



**“ The eyes don't see
what the mind doesn't know. ”**

Thank you....