

Clinical and Radiologic Characteristics of Human Metapneumovirus Infections in Adults, South Korea

Appendix

Appendix Table 1. Underlying diseases in patients infected with HMPV, South Korea*

Disease or condition	Subtype			
Solid tumors (174)	SOT (59)	HCT (9)	of HM (58)	Steroid use (90)
Lung cancer (50)	Kidney (37)	MSD (4)	Multiple myeloma (19)	Chronic obstructive pulmonary disease (24)
Breast cancer (33)	Liver (16)	MUD (1)	Acute myeloid leukemia (17)	Interstitial lung disease (18)
Hepatocellular carcinoma (15)	Pancreas and kidney (2)	Haploidentical (3)	Diffuse large B cell lymphoma (8)	Asthma (12)
Stomach cancer (15)	Heart (4)	Autologous (1)	Acute lymphoblastic leukemia (4)	Pontine infarction or intracranial hemorrhage (7)
Colorectal cancer (12)			Chronic myeloid leukemia (2)	Systemic lupus erythematosus (4)
Esophageal cancer (6)			Myelodysplastic syndrome (2)	Ulcerative colitis (3)
Prostate cancer (6)			Red cell aplasia (1)	Demyelinating polyneuropathy (3)
Brain tumor (5)			Mantle cell lymphoma (1)	Adrenal insufficiency (2)
Endometrial cancer (4)			B cell lymphoblastic lymphoma (1)	Rheumatoid arthritis (2)
Head and neck cancer (4)			Primary CNS lymphoma (1)	Idiopathic vasculitis (2)
Tube-ovarian cancer (3)			Angioblastic T-cell lymphoma (1)	Behcet disease (1)
Bile duct cancer (3)			Acute leukemia of unspecified cell type (1)	Myasthenia gravis (1)
Pancreas cancer (3)				Takayasu arteritis (1)
GIST (3)				CNS vasculitis (1)
Thymic cancer (2)				Autoimmune hepatitis (1)
Bladder cancer (2)				Perineuritis (1)
Adrenal cortical carcinoma (2)				Cushing disease (1)
Lung cancer and stomach cancer (1)				Adult-onset Still's disease (1)
Cholangiocarcinoma (1)				Idiopathic thrombocytopenic purpura (1)
Renal cell carcinoma (1)				ANCA associated vasculitis (1)
Malignant fibrous histiocytoma (1)				Critical illness polyneuropathy (1)
Papillary thyroid carcinoma (1)				Polymyalgia rheumatica (1)
Cancer of unknown origin (1)				Sarcoidosis (1)

*Values in parentheses are no. patients. Empty spaces indicate fewer diseases. CNS, central nervous system; GIST, gastrointestinal stromal tumor; HCT, hematologic stem cell transplantation; HM, hematologic malignancy; HMPV, human metapneumovirus; MSD, matched sibling donor; MUD, matched unrelated donor; SOT, solid organ transplants.

Appendix Table 2. Other respiratory pathogens identified in patients infected with HMPV, South Korea*

Pathogen	Immunocompetent, n = 459	Solid tumors, n = 174	Type of SOT, n = 59	Type of HCT, n = 9	Type of HM, n = 58	Steroid use, n = 90
Bacteria	48	20	16	1	11	20
Virus	32	14	7	0	6	5
Fungi	3	5	0	1	0	0
Bacteria and virus	6	1	0	0	2	3
Bacteria and fungi	0	1	0	0	0	0
Virus and fungi	0	0	0	0	0	1
	11 <i>Streptococcus pneumoniae</i> 6 <i>K. pneumoniae</i>	6 <i>Klebsiella pneumoniae</i> 5 MSSA	5 <i>S. pneumoniae</i> 4 G+ cocci (unknown)	1 MSSA 1 <i>Aspergillus</i> spp.	4 MSSA 2 <i>Acinetobacter baumannii</i>	5 <i>K. pneumoniae</i> 3 <i>S. pneumoniae</i>

Pathogen	Immunocompetent, n = 459	Solid tumors, n = 174	Type of SOT, n = 59	Type of HCT, n = 9	Type of HM, n = 58	Steroid use, n = 90
	5 <i>P. aeruginosa</i>	4 <i>S. pneumoniae</i>	1 <i>Pseudomonas aeruginosa</i> , CRAB		1 MRSA	3 <i>P. aeruginosa</i>
	5 MRSA	1 MRSA	1 CRPA		1 <i>K. pneumoniae</i>	3 <i>A. baumannii</i>
	4 MSSA	1 <i>Haemophilus influenzae</i>	1 <i>K. pneumoniae</i>		1 <i>P. aeruginosa</i>	2 MRSA
	4 <i>A. baumannii</i>	1 <i>Moraxella catarrhalis</i>	1 <i>K. pneumoniae</i> , <i>Aspergillus</i> spp.		1 MSSA, S. <i>pneumoniae</i>	1 MSSA
	4 <i>Haemophilus influenzae</i>	1 <i>K. pneumoniae</i> , S. <i>pneumoniae</i>	1 <i>Escherichia coli</i>		1 <i>K. pneumoniae</i> , <i>S. pneumoniae</i>	1 <i>Acinetobacter lwoffii</i>
	1 <i>Klebsiella oxytoca</i>	1 <i>K. oxytoca</i> , <i>P. aeruginosa</i>	1 <i>Mycoplasma pneumoniae</i>		3 Rhinovirus	1 <i>A. baumannii</i> , MRSA
	1 MRSA, CRAB	6 Rhinovirus	1 MSSA		1 PIV-4	1 <i>K. pneumoniae</i>
	1 MRSA, <i>Enterobacter cloacae</i>	3 Coronavirus OC43	1 Influenza virus B		1 PIV-3	1 Coronavirus OC43
	1 MRSA, <i>P. aeruginosa</i>	1 Influenza virus A	1 RSV-A		1 RSV-A	1 Influenza virus B
	1 MRSA, CRAB	1 Enterovirus	1 Cytomegalovirus		1 MSSA, PIV-1	1 Rhinovirus
	1 <i>S. pneumoniae</i> , <i>P. aeruginosa</i>	1 Coronavirus 229E	1 Coronavirus NL63		1 MSSA, rhinovirus	1 Influenza virus A
	1 <i>A. baumannii</i> , S. <i>pneumoniae</i>	1 PIV-3	2 Rhinovirus			1 RSV-B
	1 <i>Haemophilus influenzae</i> , <i>K. pneumoniae</i> , S. <i>pneumoniae</i>	1 Coronavirus OC43	1 Adenovirus			1 <i>M. catarrhalis</i> , PIV-4, influenza virus A
	1 <i>Corynebacterium striatum</i> , <i>A. baumannii</i>	4 <i>Aspergillus</i> spp.				1 <i>P. aeruginosa</i> , PIV-3
	14 Rhinovirus	1 <i>Rhizopus</i> spp.				1 MRSA, influenza virus B
	5 Influenza virus A	1 <i>K. pneumoniae</i> , PIV-3				1 Coronavirus OC43, <i>Aspergillus</i> spp.
	5 Coronavirus OC43 2 PIV-3	1 MSSA, <i>Aspergillus</i> spp.				
	2 Adenovirus					
	1 Coronavirus 229E 1 RSV-A					
	1 Enterovirus					
	1 Rhinovirus, RSV-A					
	2 <i>Aspergillus</i> spp.					
	1 <i>Rhizopus</i> spp.					
	1 <i>S. pneumoniae</i> , rhinovirus					
	1 <i>S. pneumoniae</i> , coronavirus OC43					
	1 <i>S. pneumoniae</i> , influenza virus A					
	1 <i>K. pneumoniae</i> , PIV-1					
	1 MSSA, influenza virus B					
	1 <i>P. aeruginosa</i> , influenza virus A					

*Values are no. patients. Empty spaces indicate fewer pathogens. The order from top to bottom of each column is bacteria, virus, fungi, and other pathogen. CRAB, carbapenem-resistant *A. baumannii*; CRPA, carbapenem-resistant *P. aeruginosa*; HCT, hematologic stem cell transplantation; HM, hematologic malignancy; HMPV, human metapneumovirus; PIV, parainfluenza virus; RSV, respiratory syncytial virus; MRSA, methicillin-resistant *Staphylococcus aureus*; MSSA, methicillin-susceptible *S. aureus*; MRSA, methicillin resistant *Staphylococcus aureus*; SOT, solid organ transplants.

Appendix Table 3. Extent of HMPV pneumonia by CT for 251 immunocompetent and immunocompromised patients without other pathogens, South Korea*

Characteristic	Immunocompetent, n = 138	Immunocompromised, n = 113	p value
Bilaterality	99 (72)	92 (81)	0.07
No. involved lobes	3.6 ± 1.9	4.3 ± 1.7	0.003
Macronodule	67 (49)	47 (42)	0.27
Presence of centrilobular nodules	108 (78)	81 (72)	0.23
Extent of centrilobular nodules, %	16.0 ± 13.2	14.2 ± 13.7	0.29
Presence of consolidation	60 (43)	53 (47)	0.59
Extent of consolidation, %	7.1 ± 10.7	7.7 ± 10.8	0.68
Presence of ground glass opacity	116 (84)	100 (88)	0.31
Extent of ground-glass opacity	15.0 ± 12.8	18.5 ± 15.9	0.06
Bronchial wall thickening	121 (88)	101 (89)	0.68
Bronchiectasis	17 (12)	17 (15)	0.53
Cavitation	1 (0.7)	1 (0.9)	1.00
Lymphadenopathy	40 (29)	27 (24)	0.36
Pleural effusion	24 (17)	32 (28)	0.04

*Values are no. (%) or mean ± SD. CT, computed tomography; HMPV, human metapneumovirus.