1291. Clinical Significance of Human Coronavirus in Bronchoalveolar Lavage Samples From Hematopoietic Cell Transplantation Recipients and Hematologic Malignancy Patients

Chikara Ogimi, MD[1]; Alpana Waghmare, MD[2]; Jane Kuypers, PhD[3]; Hu Xie, MS[4]; Wendy Leisenring, ScD[5]; Cecilia Yeung, MD[5]; Sachiko Seo, MD[5]; Su-Mi Choi, MD, PhD[6]; Keith Jerome, MD, PhD[7]; Janet Englund, MD, FIDSA[8]; Michael Boeckh, MD, FIDSA[7]; [1]Division of Pediatric Infectious Diseases, University of Washington, Seattle, Washington; [2]University of Washington, Seattle, Washington; [3]Laboratory Medicine, University of Washington, Seattle, Washington; [4]Clinical Research Division, Fred Hutchinson Cancer Research Center, Seattle, Washington; [5]Fred Hutchinson Cancer Research Center, Seattle, Washington; [6]Vaccine Bio Research Institute, College of Medicine, The Catholic University of Korea, Seoul, Republic of Korea; [7]Vaccine and Infectious Disease Division, Fred Hutchinson Cancer Research Center, Seattle, Washington; [8]Infectious Disease/CCTR, Seattle Children's Hospital, Seattle, Washington

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Background. Fatal pneumonia attributed to human coronaviruses (HCoVs) in hematopoietic cell transplant (HCT) recipients has been reported but systematic studies on the possible role of HCoV in lower respiratory tract disease (LRTD) in HCT and hematologic malignancy (HM) patients are limited.

Methods. We conducted a retrospective review of HCT/HM patients with HCoV detected in bronchoalveolar lavage (BAL). HCoV strains were identified in frozen BAL samples using strain-specific PCR. Mortality rates were compared among HCT recipients with LRTD caused by HCoV, respiratory syncytial virus (RSV), influenza (Flu) or parainfluenza virus (PIV) without respiratory viral co-pathogens by multivariable Cox regression analysis.

Results. We identified 37 cases with HCoV in BAL (Table). Among 23 samples available, 48% were OC43, 22% were NL63, 17% were 229E and 13% were HKU1. Overall, 23 cases (62%) required oxygen (O2) therapy at diagnosis and 19 cases (51%) died within 90 days from diagnosis. Twenty-one cases (57%) had other respiratory pathogen(s) detected, including viruses (N = 12), fungi (N = 10), and bacteria (N = 8). Mortality rates of these patients were similar to those without co-pathogens (p-value 0.89). Multivariable Cox regression for mortality adjusted for cell source, co-pathogens, neutrophils, lymphocytes, monocytes, O2 use at diagnosis, steroid use and respiratory viruses (HCoV, RSV, Flu and PIV) was carried out. Adjusted hazard ratio of HCoV LRTD for overall mortality was 1.37 (95% CI 0.67-2.82, p-value 0.39) with RSV LRTD as a reference.

	HCoV as Sole Respiratory Pathogen (N = 16)	HCoV Coinfected with Other Respiratory Pathogens (N = 21)
Demographics		
Female	5 (31%)	5 (24%)
Age: median (range)	55 (8-62)	49 (26-68)
HM patients	4	3
HCT recipients	12	18
Cord	0	1
Bone marrow	2	4
Peripheral blood stem cell	10	13
O2 requirement at diagnosis	9 (56%)	14 (67%)
Outcome		
Mechanical ventilation requirement within 10 days from diagnosis	3 (19%)	4 (19%)
Death at Day 90 from diagnosis	8 (50%)	11 (52%)

Conclusion. HCoV LRTD in HCT/HM patients is associated with high O2 requirement and mortality. Mortality associated with HCoV LRTD in HCT recipients is similar to that seen with other respiratory viral pathogens including RSV, Flu and PIV.

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