

to get flu-related complications. 41.3% reported they did not experience any high risk factors while experiencing influenza.

Conclusion. Influenza patients reported different attitudes and treatment approaches to handling their infection. It is critical to understand what matters most to patients regarding both influenza and treatment to optimally provide outreach and care.

Disclosures. Nate Way, PhD, Genentech, Inc. (Grant/Research Support) Kantar Health (Employee) Ashley Martin, PhD, Genentech, Inc. (Grant/Research Support) Kantar Health (Employee) Chris Wallick, PharmD, MS, Genentech, Inc. (Employee, Shareholder) Edward Neuberger, PharmD, MBA, MS, Genentech, Inc. (Employee, Shareholder) Mitra Corral, MS, MPH, Genentech, Inc. (Employee, Shareholder)

1346. The Risk of Readmission after RSV Hospitalization Among Children Younger than 5 Years

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Session: P-74. Respiratory Infections - Viral

Background. Respiratory Syncytial Virus (RSV) is one of the most common causes of childhood lower respiratory tract infection (LRTI) leading to hospitalization worldwide. Readmissions following viral LRTI hospitalization are common, however rates, timing and causes of readmission following RSV LRTI hospitalization are understudied. We evaluated readmissions occurring during 1-year post-discharge of RSV hospitalization.

Methods. We prospectively identified children < 5 years of age hospitalized with laboratory-confirmed RSV LRTI at Primary Children's and Riverton hospitals in Salt Lake City, Utah during the 2019-2020 RSV season. An electronic alert system identified all-cause readmission between November 2019 and April 2021. Discharge diagnoses of readmissions were reviewed by two pediatricians. We calculated the incidence rate of all-cause and respiratory-related readmission.

Results. A total of 297 children had laboratory-confirmed RSV LRTI hospitalizations during the 2019-2020 RSV season, with 24% admitted to the intensive care unit (ICU) during index RSV hospitalization and 24% having a chronic medical condition. During the 1-year follow-up period, 59 readmissions occurred among 47 patients (Table 1). The incidence rate of all-cause and respiratory-related readmission was 19.9 (95%CI 15.5-24.9) and 13.1 (95%CI 9.5-17.5) per 100 patients, respectively. Median age of readmitted patients was 11 months (interquartile range 5.9-11 months). Median number of readmissions was 1 (range: 1-4), with initial readmissions occurring within 28 days (median) of index admission; most (74%) due to a respiratory-related illness. Second and 3rd admissions were less common and occurred at 67 (median) and 160 (median) days respectively. During all readmissions, 19% of children required ICU admission and 25% had chronic medical conditions.

Table 1. Characteristics of readmissions after RSV hospitalization

Characteristics	The number of readmissions per patient			
	One admission (n=47)	Two admissions (n=7)	Three or more admissions (n=5)	All admissions (n=59)
Age at readmission (months)				
Mean (SD)	15.2 (15.1)	18.6 (13.2)	21.4 (9.3)	16.1 (14.5)
Median (IQR)	10.2 (5-20.4)	20.5 (7.7-22.2)	22.2 (21.7-25.3)	11 (5.9-11)
≥1 chronic medical condition (%)	14 (30)	1 (14)	0	15 (25)
Interval between initial admission and readmission (Days)				
Mean (SD)	55.2 (73)	79.4 (28)	185.6 (124.7)	69 (82)
Median (IQR)	28 (4-68.5)	67 (60.5-101)	160 (151-175)	45 (4.4-102)
LOS during readmission (Days)				
Mean (SD)	2.1 (1.6)	3.1 (3.2)	8.8 (7.8)	2.8 (3.3)
Median (IQR)	2 (1-3)	2 (1-3.5)	10 (1-13)	2 (1-3)
PICU admission (%)	8 (17)	2 (29)	1 (20)	11 (19)
Respiratory related (%)	35 (74)	3 (43)	1 (20)	39 (66)
PICU admission (%)	8 (23)	0	0	8 (21)

SD=standard deviation; IQR=interquartile range; LOS=length of stay; and PICU=pediatric intensive care unit

Conclusion. All cause and respiratory readmission after Initial hospitalization with RSV LRTI commonly occurred among children < 5 years. These data support the need for RSV vaccines and immunoprophylaxis to prevent RSV hospitalization. A further study with a control group is needed to determine the role of RSV in readmission.

Disclosures. Yoonyoung Choi, PhD, MS, RPh, Merck (Employee) Lyn Finelli, DrPH, MS, Merck (Employee)

1347. Comparison Between SARS-Cov-2, non-SARS-Cov-2 Coronavirus, Influenza and RSV Infections Among Solid Organ Transplant Recipients

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Session: P-74. Respiratory Infections - Viral

Background. Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) pandemic has been raging since the end of 2019 and has shown worse outcomes in solid organ transplant recipients (SOTR). The clinical differences as well as outcomes between these respiratory viruses have not been well defined in SOTR.

Methods. This is a retrospective cohort study of adult SOTR with nasopharyngeal swab or bronchoalveolar lavage PCR positive for either SARS-CoV-2, non-SARS-CoV-2 coronavirus, influenza, or respiratory syncytial virus (RSV) from January 2017 to October 2020; both inpatient and outpatient. The follow up period was up to three months. Clinical characteristics and outcomes were evaluated. Development of lower respiratory tract infection (LRTI) was defined as new pulmonary infiltrates with or without symptoms. For statistical analysis, Fischer's exact test and log rank test were performed.

Results. During study period, 157 SARS-CoV-2, 72 non-SARS-CoV-2 coronavirus, 100 influenza, 50 RSV infections were identified. Patient characteristics and outcomes are shown in tables 1 and 2, respectively. Secondary infections were not statistically significantly different between SARS-CoV-2 vs. non-SARS-CoV-2 coronavirus and influenza (p=0.25, 0.56) respectively, while it was statistically significant between SARS-CoV-2 and RSV (p=0.0009). Development of LRTI was higher in SARS-CoV-2 when compared to non-SARS-CoV-2 coronavirus (p=0.03), influenza (p=0.0001) and RSV (p=0.003). Admission to ICU was higher with SARS-CoV-2 compared to non-SARS-CoV-2 coronavirus (p=0.01), influenza (p=0.0001) and RSV (p=0.007). SARS-CoV-2 also had higher rates of mechanical ventilation when compared to non-SARS-CoV-2 coronavirus (p=0.01), influenza (p=0.01) and RSV (p=0.03). With time to event analysis, higher mortality with SARS-CoV-2 as compared to non-SARS-CoV-2 coronavirus, influenza, and RSV (p=0.01) was shown (Figure 1).

Table 1: Patient characteristics

Data	SARS-COV-2 N=157	Non-SARS-COV-2 N=72	Influenza N=100	RSV N=50
Gender (female)	64 (40.8%)	33 (46.0%)	43 (43.0%)	29 (58.0%)
Age (years)	55 (46 - 63)	60.5 (42.3-66)	49.5 (39-62)	57 (44 - 68)
Time to infection post-SOT (months)	25 (7.8 - 73)	15 (7.3-40.2)	33 (9.4 - 90)	14.4 (4-44.5)
Maintenance IS				
Prednisone	94 (59.8%)	37 (51.4%)	49 (49.0%)	29 (58.0%)
Calcineurin inhibitor	130 (82.8%)	37 (51.4%)	86 (86.0%)	12 (24%)
Antimetabolites	131 (83.4%)	51 (70.8%)	78 (78.0%)	37 (74.0%)
Kidney transplant	113 (71.9%)	27 (38%)	58 (58.0%)	26 (52.0%)
Liver transplant	15 (9.6%)	6 (%)	10 (10.0%)	7 (14.0%)
Lung transplant	3 (1.9%)	20 (27.8%)	6 (6.0%)	7 (14.0%)
Heart transplant	12 (7.6%)	9 (12.5%)	13 (13.0%)	2 (4.0%)
Other/combined transplant	14 (8.9%)	10 (13.9%)	13 (13.0%)	7 (14.0%)
ANC (10 ³ cells/μL)	3.7 (2.4 - 6.1)	4.5 (3.2 - 7.2)	4.3 (3 - 6.7)	4.9 (3.5-8.4)
ALC (10 ³ cells/μL)	0.7 (0.4 - 1.2)	0.7 (0.5 - 1.2)	0.6 (0.3-1.2)	0.5 (0.3-1.1)

Table 2: Outcomes

	SARS-COV-2 N=157	Non-SARS-COV-2 N=72	Influenza N=100	RSV N=50
Lower respiratory tract infection	103/130 (79.2%)	38/60 (63.3%)	45/95 (47.4%)	26/46 (56.5%)
Secondary infection	43 (27.4%)	17 (23.6%)	24 (24.0%)	3 (6.0%)
Intensive care unit admission	44 (28.0%)	9 (12.5%)	7 (7.0%)	5 (10.0%)
Mechanical ventilation	25 (15.9%)	3 (4.2%)	6 (6.0%)	2 (4.0%)
Rejection	13 (8.2%)	4 (5.6%)	7 (7.0%)	4 (8.0%)
Mortality at 90 days	21 (13.4%)	3 (4.2%)	5 (5.0%)	1 (2.0%)

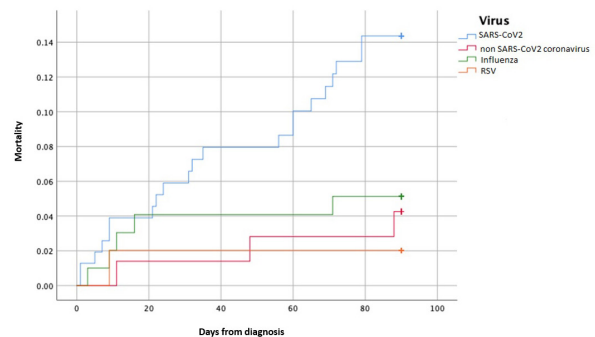


Figure 1. Kaplan Meier Curve: Comparison of Mortality between SARS-CoV-2, non-SARS-CoV-2 coronavirus, influenza and RSV

Conclusion. We found higher incidence of ICU admission, mechanical ventilation, and mortality among SARS-CoV-2 SOTR vs other respiratory viruses. To validate these results, multicenter study is warranted.

Disclosures. All Authors: No reported disclosures

1348. A Novel Host-Protein Signature Comprising TRAIL, IP-10 and CRP Differentiates Bacterial from Viral Infection in COPD Patients with Suspected Lower Respiratory Tract Infection

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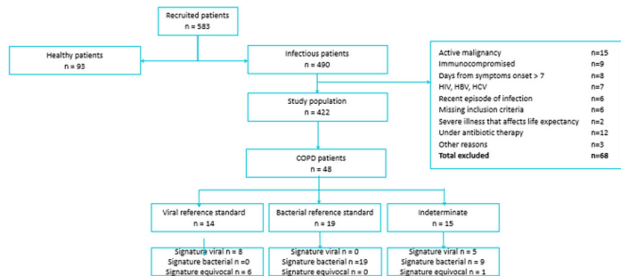
Session: P-74. Respiratory Infections - Viral

Background. Identifying infectious etiology is often challenging, yet essential for patient management, including antibiotic use. Studies have shown that a host signature comprising TNF-related apoptosis induced ligand (TRAIL), interferon gamma induced protein-10 (IP-10) and C-reactive protein (CRP) accurately differentiates bacterial from viral infection with negative predictive value >98%. Performance data was lacking in chronic obstructive pulmonary disease (COPD) patients with suspected lower respiratory tract infection (LRTI).

Methods. Adults aged >18 years with suspected LRTI were prospectively recruited at 3 medical centers (OBSERVER; grant #684589; NCT003011515). Reference standard infection etiology was adjudicated by 3 independent experts based on clinical, laboratory, microbiological, radiological and follow-up data. Host signature generates a bacterial likelihood score (0-100), providing three results: viral (0-35), equivocal (35-65) and bacterial (65-100). Experts were blinded to the signature result.

Results. Out of 583 adults recruited with suspected LRTI, 422 met infectious criteria, of whom 48 had a recorded history of COPD. 19 cases were adjudicated by the experts as bacterial, 14 as viral and 15 were indeterminate (Figure 1). The mean age was 68.2 years (standard deviation 12.3); 33 (68.8%) presented after two or more days of symptoms and 38 (79.2%) were hospitalized for a median of 6 days. 15 (31.2%) were female. For the patients adjudicated bacterial or viral labels (n=33), the discharge diagnoses were: COPD exacerbation, 12 cases (36.4%); pneumonia, 12 cases (36.4%) (3.0%); acute bronchitis, 2 cases (6.1%); upper RTI, 1 case; unspecified viral infection 1 case (3.0%); or other, 5 cases (15.2%). Host signature correctly classified all 19 bacterial cases and 8 of the viral cases, providing accurate etiology labels for 27/33 COPD patients with reference standard labels (81.8%). The remaining 6 viral cases received equivocal scores (18.2%).

COPD patient enrollment and etiology labels in the Observer study



Conclusion. Host signature accurately differentiates between bacterial and viral infections in patients with COPD history, supporting potential to improve management among these patients frequently admitted for RTIs.

Disclosures. Michal Stein, MeMed (Employee) Meital Paz, MD, MeMed (Employee) Tanya Gottlieb, PhD, MeMed (Employee, Shareholder) Eran Barash, MA, MeMed (Employee) Roy Navon, MSc, MeMed (Employee, Shareholder) Einat Moscoviz, BSc+ MBA, MeMed (Employee) Tahel Ilan Ber, MD, MeMed (Employee, Shareholder) Liran Shani, MD, MeMed (Employee) Olga Boico, PhD, MeMed (Employee) Einav Simon, PhD, MeMed (Employee, Shareholder) Noa Avni, PhD, MeMed (Employee) Kfir Oved, MD, PhD, MeMed (Board Member, Employee, Shareholder) Eran Eden, PhD, MeMed (Board Member, Employee, Shareholder)

1349. How Anchored is the Chancre? A Chart Review of Syphilis Treatment by a Safety Net Emergency Department in Atlanta, GA

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Session: P-75. Sexually Transmitted Infections

Background. Since reaching its nadir in 2000, syphilis has re-emerged as a public health threat in the U.S. The incidence of syphilis is disproportionately high in Atlanta, the epicenter of the HIV epidemic in the U.S. South. Given that syphilis infection is a strong predictor of HIV infection, identifying patients with syphilis is an important and underutilized method for connecting patients to HIV prevention and care services. Emergency departments (EDs) act as a critical access point to care in safety net health systems. We describe the recognition and empiric treatment of syphilis in the ED of Grady Healthcare System, a safety net hospital serving Atlanta.

Methods. We performed a retrospective chart review on all reactive rapid plasma reagin (RPR) tests collected from patients 18 years and older at the Grady ED from 5/1/20 to 10/31/20. We abstracted reported reason for testing, diagnosis, treatment administered, and location of treatment from the electronic health record.

Results. From 5/1/20 to 10/31/20, 148 patients with reactive RPR tests were identified. Reasons for testing were broad and included the evaluation of neurologic symptoms (47), genital/anal lesions (31), and a history of syphilis (18) (Table 1). 74 patients had presumed active syphilis (50%), 34 had previously treated syphilis (23%), 12 had false positives (8%), and 28 had an unclear diagnosis (19%) (Table 2). Of those with presumed primary syphilis who were discharged from the ED, 53% (8/15) received empiric treatment in the ED; 59% (10/17) of those with secondary syphilis received empiric treatment prior to discharge. Of the patients discharged from the ED, clinical follow up was indicated for 52% (31/59) given lack of empiric treatment or of confirmed prior treatment. Contact was attempted for 39% (12/31), but only 29% (9/31) were ultimately treated at Grady.

Table 1: Abstracted Reasons for Testing for Syphilis in the ED

Reason for Testing	Number of Patients	Percentage of Total
Stroke Workup	22	14.9%
Genital Lesion	20	13.5%
History of Syphilis	18	12.2%
AMS/Dementia Workup	17	11.5%
Rash	17	11.5%
HIV positive	14	9.5%
Other STI Symptoms	10	6.8%
Anal Lesion	10	6.8%
Patient Asked for Screening	9	6.1%
Other Neurologic Symptoms	8	5.4%
Lymphadenopathy	1	0.7%
Vision Changes	1	0.7%
Unknown	1	0.7%

For ED patients from 5/1/20-10/31/20 who had reactive RPRs, reasons for syphilis testing were taken from the chief complaint, history, or medical decision making documentation of ED providers, admitting providers, or consultants.

Table 2: Syphilis Diagnoses of ED patients with reactive RPRs

Syphilis Diagnosis by Chart Review	Number of Patients	Percentage of Total
Previously Treated Syphilis	34	22.8%
Unable to Determine	28	18.8%
Late Latent (or unknown duration)	25	16.1%
Primary Syphilis	15	10.1%
Secondary Syphilis	14	9.4%
Presumed False Positive	12	8.1%
Syphilis Proctitis	7	4.7%
Condylomata Lata	3	2.0%
Early Latent	3	2.0%
Ocular Syphilis	2	1.4%
Meningovascular	2	1.4%
General Paresis	2	1.4%
Tabes Dorsalis	1	0.7%
Presumed & Unconfirmed Neurosyphilis	1	0.7%
Tertiary - Gummatous	1	0.7%

ED patients with a positive RPR from 5/1/20-10/31/20 were chart reviewed to determine their diagnosis. Previous RPR, treponemal antibodies, CSF results, media images, progress notes, and descriptions by medical staff were reviewed to attempt to retroactively determine the most likely syphilis diagnosis.

Conclusion. Reactive RPRs were common in this acute care setting and most represented active syphilis infection. Empiric treatment was most likely to be provided for patients with clear syphilis syndromes. However, a majority of patients who were discharged without empiric treatment did not receive follow up. Institutional protocols for following up reactive tests after discharge represent an opportunity to connect patients with syphilis treatment and HIV prevention services.

Disclosures. All Authors: No reported disclosures