

1327. Human Rhinovirus Infection in Multiple Myeloma Patients: Effect on Morbidity and Mortality

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Session: P-74. Respiratory Infections - Viral

Background. Human Rhinovirus (hRV) causes mild, primarily upper respiratory tract symptoms in immunocompetent hosts. However, in immunocompromised patients, it often progresses to a lower respiratory tract infection. Multiple myeloma (MM) patients are immunocompromised due to inherent immunodeficiency and exposure to biologic and chemotherapeutic agents. The complications of hRV infection in MM patients are not well known. In this study, we aim to identify the morbidity and mortality associated with hRV in MM participants.

Methods. This was a retrospective study, using Arkansas Clinical Registry Database, which identified all MM patients diagnosed with hRV infection by nasopharyngeal multiplex polymerase chain reaction (PCR) in January-December 2019. Duplicates within 30 days were excluded. Patients were followed for 30 days after diagnosis. We assessed the need for hospitalization, intensive care unit (ICU) admission, oxygen administration, mechanical ventilation, and death. We collected their absolute neutrophil (ANC) and lymphocyte count (ALC) within three days of diagnosis and compared values using Mann-Whitney U test.

Results. We identified 217 MM patients with hRV. Ninety (41%) had prior autologous stem cell transplant, 148 (68%) had received chemotherapy within 30 days. Ninety (41%) had chest imaging, with 11 (12%) having infiltrates. Out of the 217, 69 (31.9%) were admitted, with a mean length of stay of 3 days. 13% of the admitted patients were transferred to the ICU. 65.5% of the admitted patients needed oxygen, and two required mechanical ventilation. The mean ANC and ALC for the admitted group was 3.88 cells/ μ L and 1.22 cells/ μ L respectively, compared to 3.57 cells/ μ L and 1.07 cells/ μ L in the outpatient group, $p=0.6$ and 1 . Five participants died.

Conclusion. Human Rhinovirus infection in MM patients was associated with significant morbidity, including hospitalization, ICU care, supplemental oxygen requirement, and even mechanical ventilation in 2 patients. Death was observed within 30 days, although rarely. The mean ALC and ANC were not predictive of the severity of the disease. Recognizing hRV effects on morbidity and mortality could lead to earlier recognition and management of complications in MM patients.

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1328. Risk Factors for Severe Influenza Outcomes Among Infants Born Between 2011 and 2019

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Session: P-74. Respiratory Infections - Viral

Background. Influenza in infancy can cause significant morbidity and mortality. This study aimed to characterize influenza outcomes in infants < 12 months and identify risk factors for severe infection.

Methods. A retrospective cohort of infants ≤ 12 months born between 2011-2019 who received longitudinal ambulatory and inpatient care within a multi-facility hospital system and had laboratory-confirmed influenza were included. Perinatal, medical and illness characteristics were described. Risk factors for severe influenza (hospitalization, intensive-care unit (ICU) admission, secondary bacterial infections) were analyzed using Chi-square analysis and multivariate logistic regression.

Results. Among 421 infants with influenza, 134 (32%) were < 6 months (m), 28 (6.5%) were born prematurely (< 35 weeks gestational age), and 41(10%) had chronic medical conditions (CMC). 62 (15%) required hospital admission, 13 (21%) of which required ICU care. No deaths were reported. Secondary bacterial infections were diagnosed in 101 (24%) including acute otitis media (84%), pneumonia (15%) and sinusitis (3%). Prematurity (OR 3.6, 95%CI:1.5-8.3), age < 6m (OR 3.4, 95%CI:1.9-5.9), and CMC (OR 7.6, 95%CI 3.8-15.3) were significantly associated with hospitalization. Prematurity, age < 6m, and CMC were also associated with ICU admission. Infants > 6m (OR 2, 95%CI:1.2-3.5) were more likely to be diagnosed with a secondary bacterial infection than younger infants. Among infants > 6m, complete influenza vaccination (2 doses) was associated with lower rates of antibiotic use (OR 0.5, 95% CI:0.3-0.9) compared to partial or no vaccination, but did not significantly affect hospitalization, ICU admission, or frequency of secondary bacterial infections. Adjusting for prematurity, age < 6m remained associated with hospitalization (aOR 4, 95%CI: 2.1-7.3) as did presence of CMC (aOR 7.3, 95%CI 3.3- 15.7). For ICU admission, age < 6m (aOR 6.3, 95%CI:1.6-24.1) and CMC (aOR 19.7,95%CI:4.9-79.5) were also independent risk factors.

Conclusion. Younger age and chronic medical conditions were independent risk factors for severe influenza infection. Complete influenza vaccination in eligible age groups was associated with decreased antibiotic use.

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1329. Burden of Respiratory Syncytial Virus (RSV) Infection among Hospitalized Older Adults and Those with Underlying Chronic Obstructive Pulmonary Disease (COPD) or Congestive Heart Failure (CHF)

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Session: P-74. Respiratory Infections - Viral

Background. The burden of Respiratory Syncytial Virus (RSV)-associated hospitalization in adults is incompletely understood. The COVID-19 pandemic has resulted in multiple public health measures (e.g., social distancing, handwashing, masking) to decrease SARS-CoV-2 transmission, which could impact RSV-associated hospitalizations. We sought to compare RSV-associated hospitalizations from 2 pre- and one mid-COVID-19 winter viral respiratory seasons.

Methods. We conducted an IRB-approved prospective surveillance at two Atlanta-area hospitals during the winter respiratory viral seasons from Oct 2018-Apr 2021 for adults ≥ 50 years of age admitted with acute respiratory infections (ARI) and adults of any age with COPD or CHF-related admissions. Adults were eligible if they were residents of an 8 county region surrounding Atlanta, Georgia. Those with symptoms > 14 days were excluded. Standard of care test results were included. Asymptomatic adults ≥ 50 years of age were enrolled as controls in Seasons 1 and 2. Nasopharyngeal swabs from cases and controls were tested for RSV using BioFire[®] FilmArray[®] Respiratory Viral Panel (RVP). We compared the demographic features and outcomes of RSV+ cases and controls.

Results. RSV was detected in 71/2,728 (2.6%) hospitalized adults with ARI, CHF, or COPD and 4/466 (0.9%) controls. In Season 1, RSV occurred in 5.9% (35/596 patients), in Season 2 3.6% (35/970 patients), but in only 0.09% (1/1,162 patients) in Season 3 ($P < 0.001$ for both seasons). RSV detection in Season 3 was similar to RSV detection among controls during Seasons 1 and 2 ($P=0.6$). Median age of cases and controls was 67 years (Table 1). Of cases with RSV 11% were admitted to the ICU and two required mechanical ventilation. The majority of hospitalized patients were discharged home (95.8%) with a median length of hospitalization of three days (IQR 2-7).

Table 1. Demographic Features and Outcomes Among RSV-Positive Hospitalized Adults.

| | | RSV positives | |
|---|------------------|---------------|-------------|
| | | Cases | Controls |
| | | S 1,2, and 3 | S 1&2 |
| Demographics | | | |
| Total Enrolled | | 2,728 | 466 |
| RSV positive, n (%) | | 71 (2.6%) | 4 (0.9%) |
| Age in years, median [IQR] | | 67 [57,78] | 67 [62, 78] |
| Sex | Female | 49 (69.0) | 2 (50) |
| | Male | 22 (31.0) | 2 (50) |
| Race | White | 19 (26.8) | 2 (50) |
| | African American | 50 (70.4) | 2 (50) |
| | Unknown | 2 (2.8) | 0 (0) |
| Ethnicity* | Hispanic | 1 (1.4) | 0 (0) |
| | Non-Hispanic | 69 (98.6) | 4 (100) |
| Outcomes | | | |
| ICU admission | Yes | 8 (11.3) | |
| Mechanical ventilation among those admitted to the ICU | Yes | 2 (25.0) | |
| Discharge location | Home | 68 (95.8) | |
| | Death | 1 (1.4) | |
| | Hospice | 2 (2.8) | |
| Length of hospital stay, median days [IQR] | | 3 [2, 7] | |

*Cases missing response for 1 patient

Conclusion. Over 3 seasons, RSV was detected in 2.6% of adults admitted to the hospital with ARI, CHF or COPD. The rate of RSV dramatically declined during the