

Epidemiology, Clinical Features and Outcomes of Hospitalized Adult Patients with Respiratory Syncytial Virus Infections

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Introduction

- Respiratory Syncytial Virus (RSV) is a common cause of respiratory tract infection (RTI) among adults. RSV causes increased morbidity and mortality in the elderly and individuals with underlying cardiopulmonary diseases and immunocompromised conditions.¹
 - In 2021, we observed higher rates of RSV-related lower respiratory tract infections (LRTIs) and increased morbidity in individuals <65 years who did not have underlying cardiopulmonary disease and were not immunocompromised.
 - Due to these findings, we aim to confirm our anecdotal observations of increased severity of RSV disease with more LRTIs in relatively younger and immunocompetent individuals.
- ### Study Objectives
- Observe the epidemiology, clinical features and outcomes of RSV infection in adult hospitalized patients.
 - Observe the proportion of LRTI in adult patients, with and without underlying comorbidities.

Methods

- A multicenter retrospective study was conducted, reviewing electronic medical records of patients from 5 regional hospitals between January 2019 to December 2021. IRB approval was obtained.
- Inclusion Criteria: Adult patients hospitalized for documented RSV related diseases.
- The patients were identified by using ICD 10 codes for RSV related diseases.

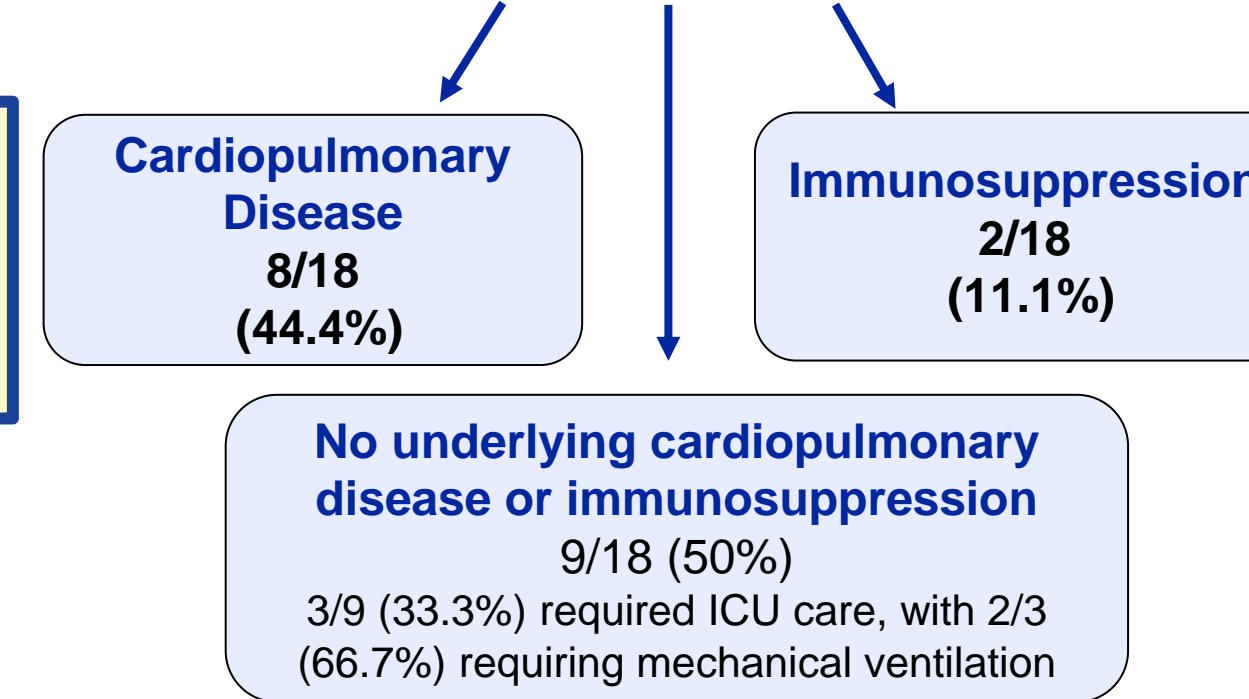
Results

Patient Demographics

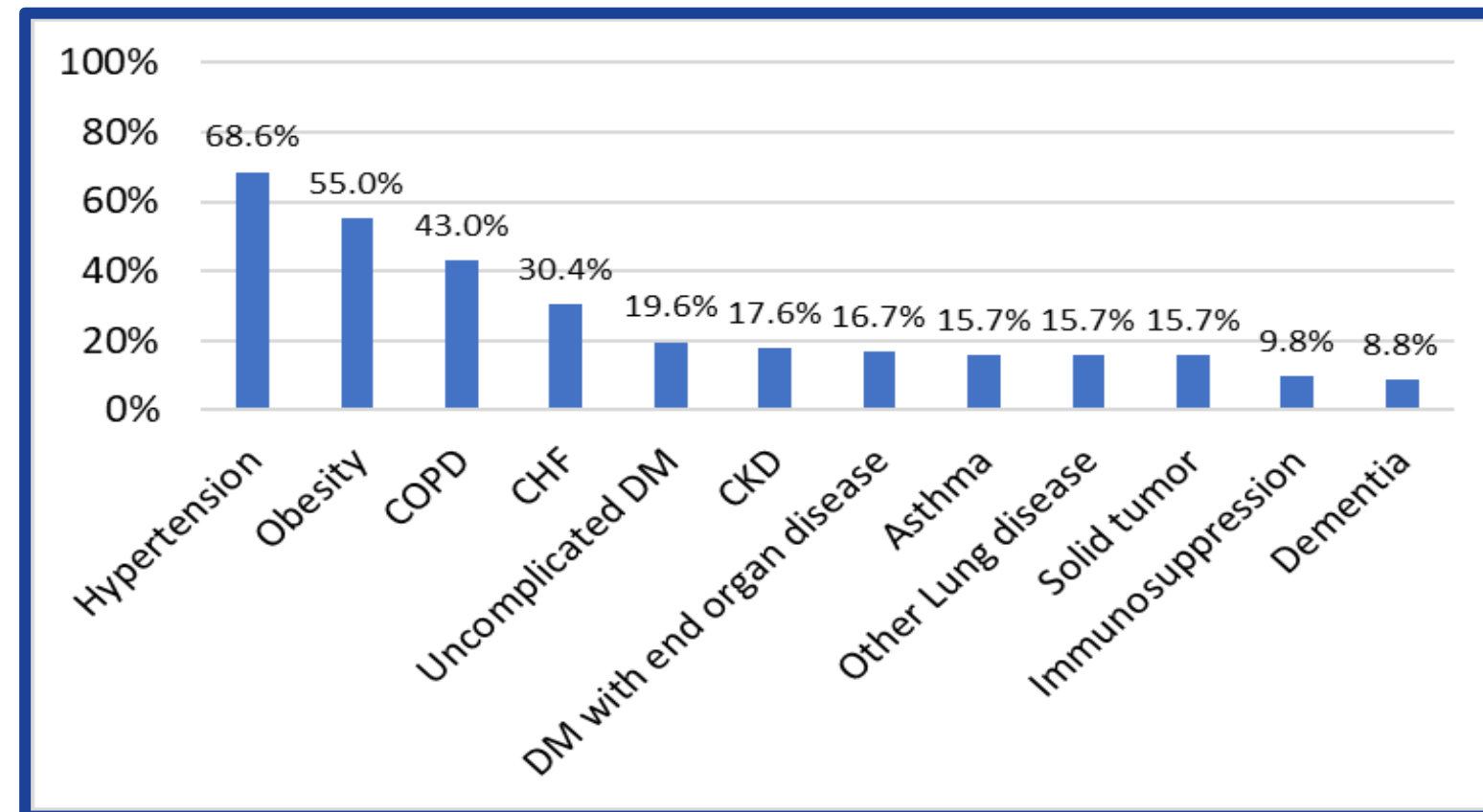
| | | n=102 | Percent |
|---------------|--------|-------|---------|
| Gender | Female | 61 | 59.8% |
| | Male | 41 | 40.2% |
| Race | White | 60 | 58.8% |
| | Black | 42 | 41.2% |
| Age of Adults | < 65 | 38 | 37.3% |
| | ≥ 65 | 64 | 62.7% |

- Age years (mean ± SD): 68.8 ± 14
- Body Mass Index (Kg/m²): 31.0 ± 9
- Length of stay (days): 6.5 ± 5.6

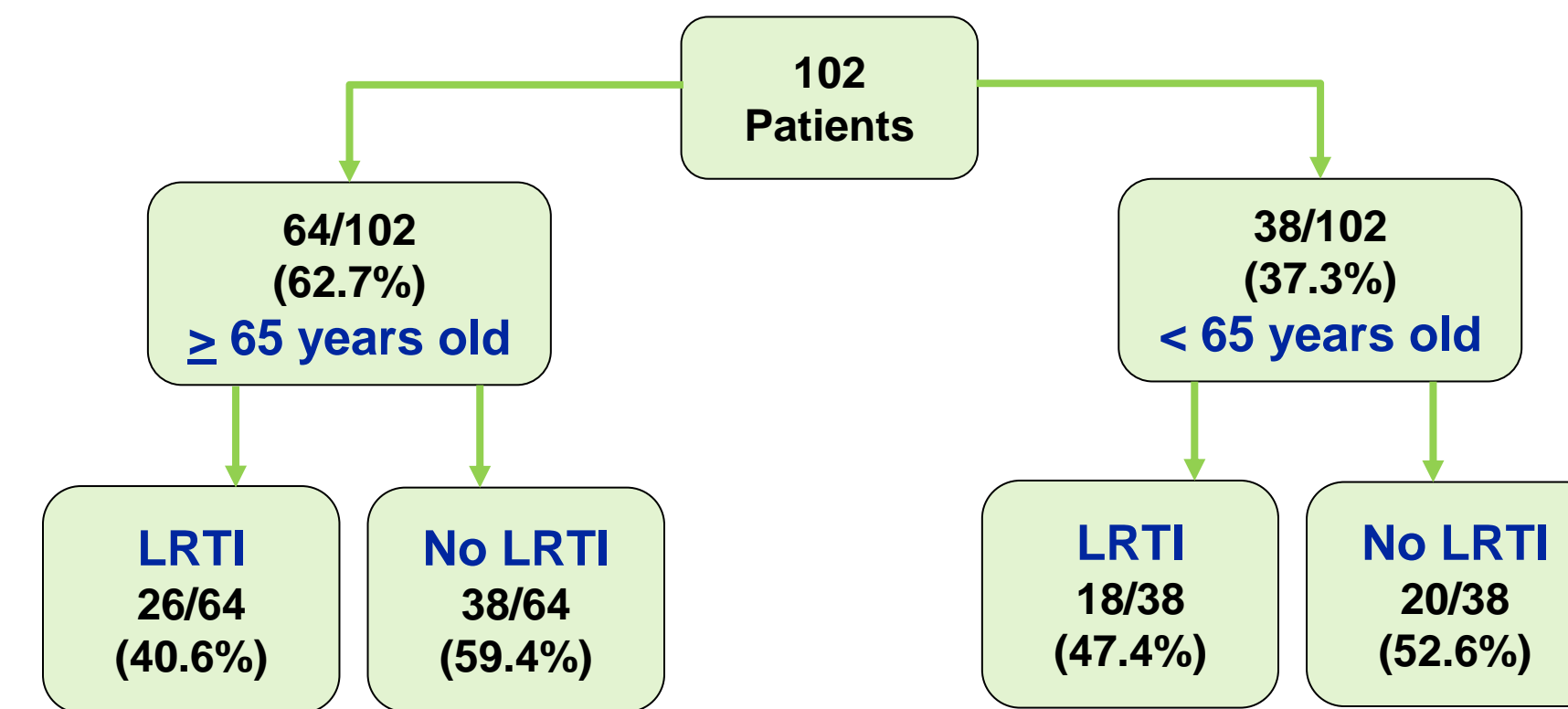
Risk Factors among RSV infected patients <65 years old who developed LRTI



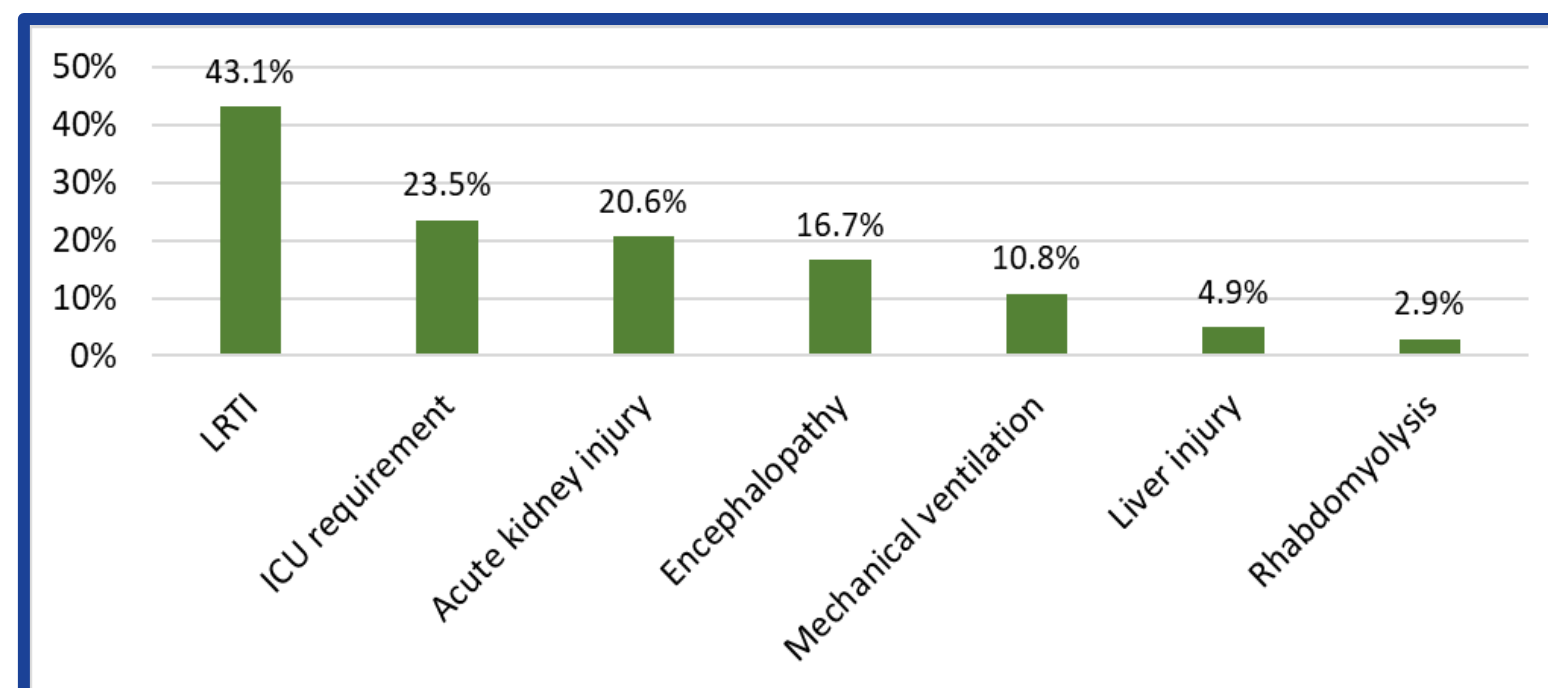
Comorbidities observed in patients admitted with RSV-related diseases



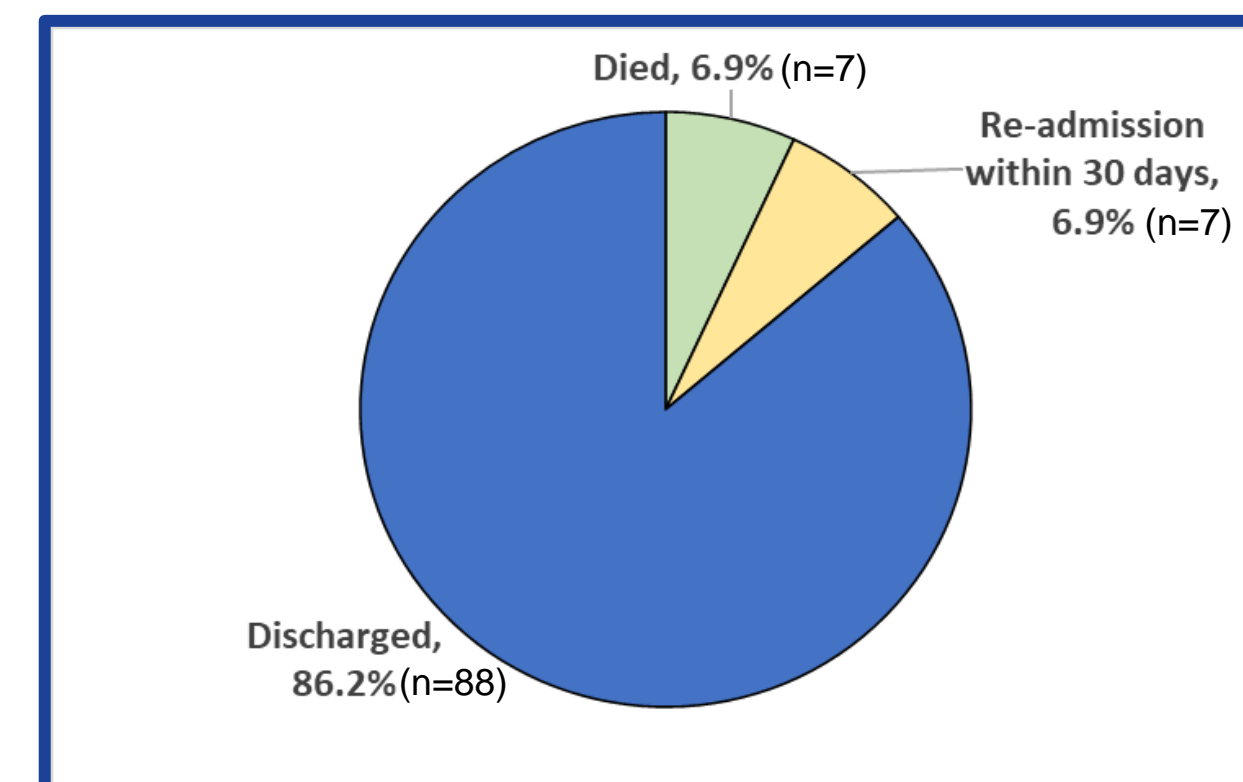
LRTI in RSV Infected Patients



Complications seen in patients admitted with RSV-related diseases



Mortality, Re-admission or Discharged



Discussion

- Our study showed that 43% patients developed LRTI, 23.5% patients required critical care, 20.6% had acute kidney injury, 16.7% developed encephalopathy and 5% had liver injury.
- During the past two decades, a growing number of studies have clearly demonstrated RSV as a cause of severe LRTIs, even life-threatening disease in high-risk populations.²
- There are significant gaps in our understanding of RSV infection in adults and larger studies are needed to confirm our study findings.

Conclusions

- Our study finds that RSV infection causes significant morbidity in terms of hospitalization, length of stay, critical care requirement and even death particularly in elderly people and individuals with underlying cardiopulmonary or immunocompromised diseases.
- We observed that LRTI was seen in a high proportion of young patients with no underlying cardiopulmonary or immunocompromise diseases.

Limitations

- Retrospective study
- Small sample size

Future Direction

- Review the epidemiology and outcomes of RSV infection in a larger cohort of adult patients.

References

- <https://www.cdc.gov/rsv/high-risk/older-adults.html>
- Falsety AR, Walsh EE. Respiratory syncytial virus infection in adults. Clin Microbiol Rev. 2000 Jul;13(3):371-84. doi: 10.1128/CMR.13.3.371. PMID: 10885982; PMCID: PMC88938.
The authors have no conflict of interest