

Clinical and Epidemiological Characteristics of Respiratory Syncytial Virus Infections in Children: A Single-Center Retrospective Study

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Abstract

Objective and Aim

Respiratory syncytial virus (RSV) is a leading cause of acute respiratory tract infections across all age groups and represents the most common etiological agent of lower respiratory tract infections in children under one year of age. The majority

of children are infected with RSV by the age of two years. This study aimed to evaluate the epidemiological and clinical characteristics, as well as the treatment modalities and treatment responses, of pediatric patients aged 0–18 years who presented to our hospital with respiratory symptoms and were diagnosed with RSV infection.

Materials and Methods

This retrospective study was conducted in pediatric patients aged 0–18 years at Çukurova University Faculty of Medicine, Balcalı Hospital, between January 2022 and January 2025. Patients who presented with symptoms of lower respiratory tract infection during the study period and were found to be RSV-positive by multiplex real-time polymerase chain reaction (RT-PCR) testing of nasopharyngeal swab specimens were included in the study.

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Results

A total of 26 patients were included in the study, of whom 22 were male (84.6%). The median age was 19.5 months (min-max: 1–186 months). A history of prematurity was present in 7 patients (26.9%), and 16 patients (61.5%) had underlying chronic diseases. When the presenting complaints were evaluated, cough was present in 76.9%, fever in 53.8%, and respiratory distress in 61.5% of the patients.

When chest radiographs were examined, bilateral infiltration was observed in 46.1%, unilateral infiltration in 11.6%, and hyperinflation in 15.3% of the patients. RSV was identified as the sole pathogen in 15 patients, while among co-infections, RSV–rhinovirus co-infection was the most common.

A total of 19 patients (73%) required oxygen support; of these, 52.6% received nasal cannula, 10.5% reservoir mask, 21.1% high-flow nasal cannula oxygen (HFNC), and 15.8% invasive mechanical ventilation support. Complications developed in 2 patients during treatment, 5 patients were admitted to the pediatric intensive care unit, and 1 patient died.

Conclusion

Respiratory syncytial virus (RSV) is one of the most common causes of acute lower respiratory tract infections, particularly in children under two years of age, and in our study, the majority of cases were also observed in the younger age group. Prematurity and the presence of underlying diseases stand out as important risk factors for a more severe course of the disease. In our study, the presence of oxygen requirement in a significant proportion of patients supports that RSV infections can lead to severe clinical conditions. Therefore, in addition to early diagnosis and appropriate treatment, it is of great importance to raise awareness among families regarding hygiene measures, avoidance of household cigarette smoke exposure, and adherence to the national immunization schedule.

Keywords: Respiratory Syncytial Virus, Child, Lower Respiratory Tract Infection.

1. Introduction

Respiratory syncytial virus (RSV) is a leading cause of acute respiratory tract infections across all age groups and represents the most common etiological agent of lower respiratory tract infections in children under one year of age (1). The majority of children are infected with RSV by the age of two years (2). This study aimed to evaluate the epidemiological and clinical characteristics, as well as the treatment modalities and treatment responses, of pediatric patients aged 0–18 years who presented to our hospital with respiratory symptoms and were diagnosed with RSV infection.

2. Materials and Method

This retrospective study was conducted in pediatric patients aged 0–18 years at Çukurova University Faculty of Medicine, Balcalı Hospital, between January 2022 and January 2025. Patients who presented with symptoms of lower respiratory tract infection during the study period and were found to be RSV-positive by multiplex real-time polymerase chain reaction (RT-PCR) testing of nasopharyngeal swab specimens were included in the study.

3. Results

A total of 26 patients were included in the study, of whom 22 were male (84.6%). The median age was 19.5 months (min-max: 1–186 months). A history of prematurity was present in 7 patients (26.9%), and 16 patients (61.5%) had underlying chronic diseases. When the presenting complaints were evaluated, cough was present in 76.9%, fever in 53.8%, and respiratory distress in 61.5% of the patients.

When chest radiographs were examined, bilateral infiltration was observed in 46.1%, unilateral infiltration in 11.6%, and hyperinflation in 15.3% of the patients. RSV

was identified as the sole pathogen in 15 patients, while among co-infections, RSV-rhinovirus co-infection was the most common. RSV infections were most frequently observed in December (57.7%), followed by January (30.8%).

A total of 19 patients (73%) required oxygen support; of these, 52.6% received nasal cannula, 10.5% reservoir mask, 21.1% high-flow nasal cannula oxygen (HFNC), and 15.8% invasive mechanical ventilation support. During the course of treatment, complications developed in two patients, both of which were identified as pneumonia. Five patients were admitted to the pediatric intensive care unit, and one patient died. The deceased patient had an underlying metabolic disorder.

Conclusion

Respiratory syncytial virus (RSV) is one of the most common causes of acute lower respiratory tract infections, particularly in children under two years of age, and in our study, the majority of cases were also observed in the younger age group. Prematurity and the presence of underlying diseases stand out as important risk factors for a more severe course of the disease. Chronic lung disease, chronic heart disease, Down syndrome, asthma, and immunodeficiency are important risk factors for acute lower respiratory tract infections. RSV management is primarily supportive and includes fluid therapy and respiratory support (3,4). In our study, the presence of oxygen requirement in a significant proportion of patients supports that RSV infections can lead to severe clinical conditions. Therefore, in addition to early diagnosis and appropriate treatment, it is of great importance to raise awareness among families regarding hygiene measures, avoidance of household cigarette smoke exposure, and adherence to the national immunization schedule. In addition, the monoclonal antibody Nirsevimab, which has recently been approved for single-dose use in both healthy and high-risk infants, represents an important advancement in RSV prophylaxis (5-7).

Conflict of interest

The authors declare no conflict of interest.

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