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Wheezing in Preschool Children Following Viral RSV or Rhinovirus Infections: Results of a 4-Year Retrospective Experience at the Largest Pediatric Hospital in Greece and Comparative Literature Review

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Abstract

Introduction: Recurrent wheezing following viral lower respiratory tract infections is common in early childhood and may predispose children to the development of asthma later in life. Data from the Greek pediatric population remain limited.

Objective: To describe the clinical course of post-viral wheezing in preschool children followed at the Pediatric Pulmonology Department of our hospital and to compare our findings with those reported in the international literature.

Methods: A retrospective analysis was conducted on 110 children (aged 6 months–5 years; mean age 2.1 ± 1.2 years) who experienced ≥ 2 wheezing episodes within 12 months following confirmed Respiratory Syncytial Virus infection (RSV, $n=62$) or rhinovirus infection (Rhino, $n=48$). Data collected included the number of exacerbations, hospitalizations, FEV1 values (for children aged ≥ 3 years), response to bronchodilator therapy, and the requirement for inhaled corticosteroids (ICS). The literature review assessed prevalence, risk factors, and progression rates to asthma in cohort studies.

Results: The mean number of wheezing episodes per child was 3.1 ± 1.2 in the RSV group and 4.3 ± 1.5 in the Rhinovirus group ($p=0.01$). Hospitalization rates were 18% for RSV versus 25% for Rhinovirus infections ($p=0.25$). Predicted FEV1 $<85\%$ was observed in 21% of children aged ≥ 3 years. ICS therapy was required in 42% of the total cohort. Overall, a favorable clinical response was observed in 78% of patients. The literature review reported progression to recurrent wheezing or asthma in 25–40% of cases, with rhinovirus infection associated with a higher risk, consistent with our findings. Male sex, history of atopy, and younger age at first infection were identified as additional risk factors.

Conclusions: Post-infectious (viral-associated) wheezing episodes following RSV or Rhinovirus infection are common and clinically significant. Our single-center experience confirms international findings identifying Rhinovirus infection as the strongest predictive factor for recurrent wheezing episodes and possible asthma development. Early identification of high-risk children may enable targeted and timely interventions.