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Burden of respiratory syncytial virus (RSV) infection and subsequent wheezing on infants and children: a multi-country parent's perception cross-sectional survey

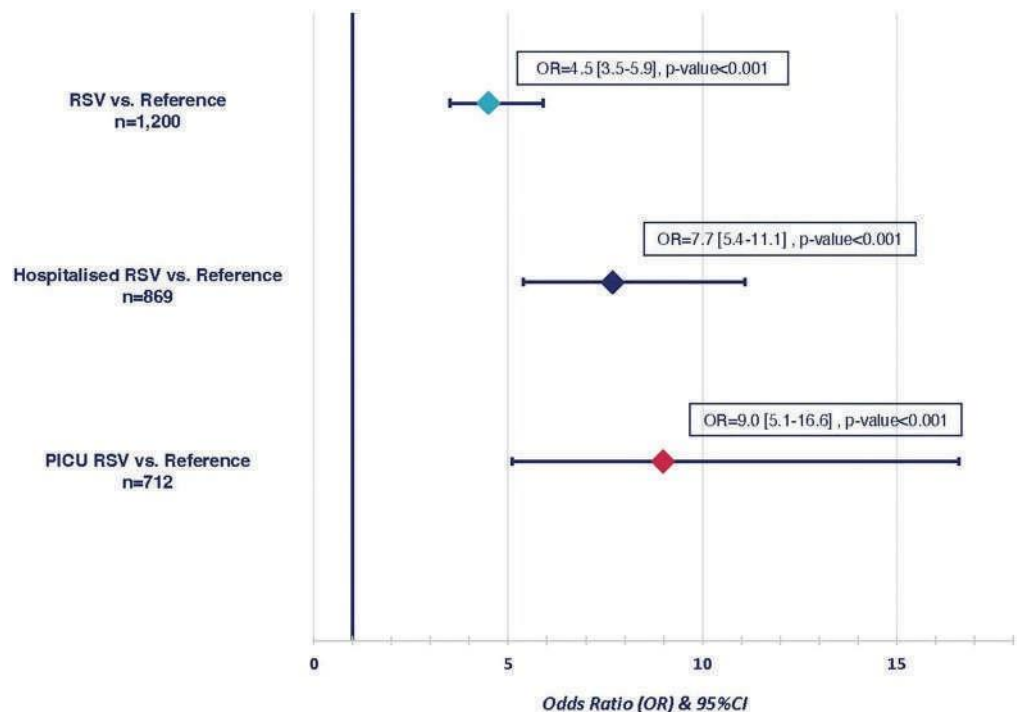
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Background: Respiratory Syncytial Virus (RSV) is the leading cause of hospitalisation for acute lower respiratory tract infections in infants under 1yo. Epidemiological studies suggest RSV bronchiolitis is associated with an increased risk of subsequent wheezing in children. This survey aimed to document the parents' perception of the potential link between RSV infection and subsequent wheezing-related healthcare and family costs and parents' awareness about RSV preventative solutions.

Methods: Using the Carenity online patient community and market research agencies, this cross-sectional survey (February-April 2023) enrolled 1,200 parents with at least one child aged ≤ 6 years and who lived in the US, UK, Spain, or Italy (n=300 per country). Based on parents' self-reported answers

Figure 1. Associations between RSV infection and the presence of wheezing in children aged below 6 years old in the overall survey sample (n=600 in the RSV group, n=600 in the Reference group) and in sub-groups of hospitalised RSV infection (n=269) or paediatric intensive care unit (PICU) admission for RSV (n=112).



to an online questionnaire, children diagnosed with RSV/bronchiolitis before 2 and in the last five years were included in the RSV group (n=150 per country), and those never diagnosed with RSV/bronchiolitis in the Reference group (n=150 per country). Multivariable logistic regression models and stepwise selection procedures were used to evaluate the association between RSV infection and subsequent wheezing in children. Chi-square and Fisher's exact tests were used to compare the wheezing-related healthcare utilisation and costs between the RSV and Reference groups.

Results: The mean age at RSV diagnosis was 11.2 months (SD=7.2). 45% of RSV cases led to hospitalisation, and 61% reported at least one wheezing episode. Overall, the odds of subsequent wheezing were 4.5 (95%CI 3.5-5.9) higher in the RSV group than in the Reference group. The strength of this association increased in subgroup analyses based on RSV infection severity (Figure 1). Similar trends were observed in country-specific studies. Moreover, respiratory system specialists and paediatricians were significantly more visited for wheezing-related issues in the RSV (53% and 75% of parents reporting ≥ 1 visit since wheezing onset, respectively) than in the Reference group (33% and 57%). Costs related to prescribed medications for wheezing were significantly higher in the RSV group (69%) than in the Reference group (55%), and medications were the primary source of parents' expenses. Finally, 60% of parents felt they lacked knowledge about RSV prevention, and 30% did not feel sufficiently supported to manage their children's wheezing.

Conclusions: This survey suggests a potential association between RSV infection before the age of 2 and the presence of subsequent wheezing in children. In addition, wheezing was associated with increased healthcare utilisation, especially when combined with an RSV infection. Finally, this survey highlights the need for improved awareness about RSV prevention