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Title: Relevance of respiratory infections in preschool wheeze – A hospital based study

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Body: Objective: To clinically characterize preschool children with acute wheeze and examine the underlying microbial findings that might cause symptoms of bronchial obstruction. Background: Viral wheeze is very common in preschool children, 30-40% will still have wheeze at school age. Methods: 100 preschool children, 6 months to 4 years old with on-going acute wheeze and 92 age-matched healthy controls without history of wheeze or known sensitization to airborne allergens were recruited. Parents answered questionnaires regarding background factors and triggers for childhood wheeze. Specific IgE to airborne and food allergens were analysed. The children with acute wheeze were tested for presence of virus and bacteria. Results: Significant differences between cases and controls ($p < 0.05$) were found for parental asthma/pollen allergy, recurrent upper/lower respiratory infection, earlier X-ray verified pneumonia, respiratory syncytial virus infection, presence of eczema and children's day care attendance. There was no significant difference in levels of specific IgE between the groups. In 67% of the children with acute wheeze one or more viruses were identified; rhinovirus dominated. Bacteria were found in 73% of the children tested (n=48). Moraxella catarrhalis dominated (52%). Conclusion: Children with acute wheeze have had significantly more respiratory infections, including pneumonias, and attend daycare centers in significantly higher proportion than a healthy control group. Parental asthma and pollen allergy were confirmed as significant risk factors for wheeze. Both virus and bacteria were found together or alone, suggesting that they act as triggers of acute wheeze in preschool children independently.