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Title: Th1/Th2 cytokine response in infants with lower respiratory tract infection: Can we predict wheezing?

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Body: Aim The aim of the study was to assess the relationship among cytokine response in lower respiratory tract illness (LRTI) with wheezing in infancy and frequency of wheezing episodes later, in preschool age. Methods 45 Infants younger than 3 years of age admitted to Iashvili central children hospital of Tbilisi, between January 2010 and December 2011, with an acute episode of wheezing associated with LRTI were selected. Levels of tumor necrosis factor alpha (TNF-alpha), interferon-gamma (IFN-gamma), interleukin-6 (IL-6) in blood were evaluated by ELISA at admission to the clinic. IgE concentration also was assessed. The association between wheezing and familial, pre- and postnatal risk factors also was investigated. The follow-up study consisted of physical examination and/or written questionnaire. Results At follow-up, 12 children (27%) had recurrent wheezing. Cytokine responses were analyzed in relation to the development of recurrent episodes of wheezing during a 2-year follow-up period. IL-6 and TNF-alpha levels during LRTI turned out to be higher in infants that later developed wheezing. No association was found between IFN-gamma responses and recurrent wheezing. Atopy in infancy was associated with the increased risk for wheezing (OR:7.4; 95% confidence interval [CI]: 1.799 to 30.994). Conclusions Our results suggest that characteristics of the immune system present during the infancy might anticipate the likelihood of development of episodes of airway obstruction in preschool age. Longer follow-up is required to better understand the role of these cytokines, as well as risk factors, in the development of bronchial obstruction.