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Title: Atopic sensitization at the first wheeze is associated with longer daily asthma controller therapy: A 7-year follow-up

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Body: Background: Rhinovirus-associated early wheezing has been recognized as a new and important risk factor for asthma in children. Objective: To investigate whether rhinovirus etiology or other factors affect the duration of daily asthma controller therapy in children. Methods: This post hoc analysis of 111 infants, hospitalized for the first wheeze and participating in a larger randomized double-blind trial (Vinku-study) comparing 3 days' oral prednisolone course with placebo. They were followed-up for 7 years. We analyzed whether virus etiology (rhinovirus, RSV), atopic sensitization (cut-off >0.35 kU/L for common food and aeroallergens), atopic features (eczema, blood eosinophil count), prednisolone, and other host or environmental risk factors for asthma (age, sex, parental asthma) obtained at study entry affected the duration of daily asthma controller therapy (in years). Cox model was used and adjusted to age, rhinovirus, eczema, blood eosinophil count >0.4 x 10⁹/L, and prednisolone intervention when relevant. Results: At study entry the median age was 12 months (range 3-35 months). Daily asthma controller therapy was started in 51/111 (46%) children for recurrent wheezing, and so far, we have analyzed this population. The only risk factor for longer therapy was atopic sensitization at the time of the first wheeze (hazard ratio 3.39; 95% confidence interval 1.08-10.6). Rhinovirus etiology or other studied factors had no effect. Conclusions: Atopic sensitization at the time of the first wheeze seems to be closely associated with the longer duration of daily asthma controller therapy in young children. (ClinicalTrials.gov number, NCT 00494624).