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Title: Early-onset transient asthma and impaired lung function in adolescence - preliminary data from the BAMSE cohort

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Body: Background Early-onset asthma has been suggested to be related to lung function deficits that track through the school years. Aim To examine associations between early-onset asthma and lung function at 8 and 16 yrs of age. Methods The prospective BAMSE birth cohort (n= 4089) has information on wheeze and asthma symptoms from follow-ups at 1, 2, 4, 8 and 16 yrs. Forced expiratory volume in 1 second (FEV₁) and forced vital capacity (FVC) were performed at 8 and 16 yrs. Asthma up to 4 yrs was defined as >3 episodes of wheezing in the last 12 mths, combined either with inhaled steroids or signs of hyper-reactivity; and wheeze at 8 and 16 yrs as one or more episodes of wheeze in the last 12 mths. The reference group was free of wheeze at all time points. Results 12% (n=206) of the examined children had asthma onset before the age of 4 yrs. 47 (23%) of these reported wheeze at both 8 and 16 yr (early-onset persistent asthma), while 102 (50%) experienced no further symptoms after the age of 4 (early-onset transient asthma). Compared to the reference group, FEV₁/FVC(%) at 8 yrs was significantly lower in the persistent (-4.12 % units, p < 0.001) and transient group (-1.79 % units, p = 0.002). At 16 yrs, the corresponding results for the persistent group were -5.59 % units, p < 0.001, and for the transient group -2.99 % units, p < 0.001. Lung growth, estimated as FEV₁ increase from 8 to 16 yrs, was significantly lower for both groups. Conclusions Onset of asthma in the first 4 yrs of life was in our study associated with impaired lung function at 8 and 16 yrs of age. Even if symptoms are transient, there seems to be further reduction of lung function between childhood and adolescence.