Abstract Group: 7.2. Paediatric Asthma and Allergy
Keyword 1: Asthma - diagnosis Keyword 2: Lung growth/development Keyword 3: Lung function testing

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

Dr. Jenny 24827 Hallberg jenny.hallberg@sodersjukhuset.se 1,2, Dr. Per 24828 Thunqvist per.thunqvist@sodersjukhuset.se MD 1,2,3, Dr. Erica 24829 Schultz erica.schultz@ki.se MD 1, Dr. Inger 24830 Kull inger.kull@ki.se 2,3, Dr. Per 24831 Gustafsson per.gustafsson@vgregion.se MD 4,5, Prof. Dr Magnus 24838 Wickman magnus.wickman@ki.se MD 1,2 and Dr. Erik 24839 Melén erik.melen@ki.se MD 1,2,6 1 Institute of Environmental Medicine, Karolinska Institutet, Stockholm, Sweden ; 2 Sachs' Children's Hospital, Södersjukhuset, Stockholm, Sweden ; 3 Department of Clinical Science and Education, Södersjukhuset, Karolinska Institutet, Stockholm, Sweden ; 4 Sahlgrenska Academy, University of Gothenburg, Göteborg, Sweden ; 5 Department of Paediatrics, Central Hospital, Skövde, Sweden and 6 Centre for Allergy Research, Karolinska Institutet, Stockholm, Sweden.

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 (FEV\textsubscript{1}) 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, FEV\textsubscript{1}/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 FEV\textsubscript{1} 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.