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Title: Remodelling of the bronchial wall in very young children at risk for developing asthma

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Body: Remodelling of the bronchial wall in asthmatic patients includes various attributes like thickening of the basement membrane, hyperplasia of smooth muscle cells or increased vascularity of the subepithelial tissue. Although the prevalence of asthma in childhood is much higher than in adults, we still don't have much information about the onset and development of these changes. In the past, remodelling of the bronchial wall was considered to be result of a chronic inflammation going on hand in hand with the course of the disease. In this study we analyzed 30 endobronchial biopsies from very young children (average age of 18.9 months) that were taken during bronchoscopic examination done for various reasons (e.g. chronic cough, recurrent bronchitis). Thirteen children with atopic eczema or history of parental asthma were considered at risk for developing asthma and remaining seventeen children formed the control group. We found significant thickening of the basement membrane in children at risk for developing asthma compared to the controls (3.53 μm and 2.89 μm respectively). In ten of these children we analysed the proportion of laminin-positive layer in the total thickness of the basement membrane that was also significantly higher in asthma group (65.94 % and 42.11% respectively). We conclude that these results may support need for early diagnosis of obstruction and subsequent preventative treatment in children in high risk for developing asthma as structural changes in the bronchial mucosa may be present with first symptoms. Supported by GAUK 340911 and IGA MZ NT/11444.