Structural changes in the bronchial mucosa of young children at risk of developing asthma.

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Abstract

BACKGROUND: Bronchial asthma often starts in early childhood. Clinical manifestation of the disease is likely due to inflammatory processes in the airways initiated by various stimuli. Developed remodelling is regularly observed in the bronchial mucosa of adult asthmatics but we still lack information about its onset and latter development with the natural course of the disease. In this study, we analysed histological findings in bronchial biopsies obtained from very young children (under 4 yr of age). We hypothesized that initial undetectable changes in the airway epithelium of children predisposed to asthma may be one of the first mechanisms leading to morphological changes in the bronchial mucosa.
METHODS: We measured the thickness of the basement membrane using a light microscope and analysed the presence of its three basic structural glycoproteins: laminin, tenascin and collagen IV, using immunohistochemical techniques. We compared these findings in children predisposed to asthma according to the selected clinical criteria of the Asthma Predictive Index and in a control group of children.

RESULTS: We found a significant difference in the thickness of the basement membrane between the two groups. We also found a difference in the subepithelial deposition of laminin and collagen IV in the basement membrane but no difference in the deposition of tenascin.

CONCLUSIONS: We conclude that initial changes leading to further remodelling may start at a very early age even before clinical manifestation of the disease.


Published: 30. 11. 2015 / Responsible person: Mgr. Ing. Tereza Kůstková

Source URL (retrieved on 19. 10. 2018 - 1:34):