ABSTRACT

It is very difficult to diagnose bronchial asthma in early childhood. Starting of preventative anti-inflammatory treatment is often delayed due to the high prevalence of acute episodes of bronchial obstructions in very early age. The aims of this thesis were to demonstrate that in children who are at higher risk for developing asthma we can find some structural changes in the bronchial mucosa that might predict future bronchial remodelling with all its patophysiological and clinical consequences.

Using light microscopy we analyzed 14 bioptic samples from bronchial mucosa stained with haematoxylin-eosin from children less than 4 years of age in risk for developing asthma and we compared them with the samples from the control group of 16 children. Using indirect immunohistochemistry we studied the expression of structural glycoproteins of the basement membrane and the presence of inflammatory cells in the subepithelial tissue. In cooperating children we also performed lung function testing in preschool age.

In risk children we found initial remodelling changes concerning the basement membrane thickening due to increased deposition of laminin in the outer part of the basement membrane. This thickening was not in correlation with the presence of inflammatory cells in the subepithelial tissue. Also, we did not find correlation between the lung fuction in preschool age and the rate of remodelling.

In the clinical part of the study we did not find significant differences in asthma phenotypes between the children at risk for developing asthma and the control group.

The finding of incipient remodeling changes in the risk group can encourage the clinicians to early onset of an adequate antiasthmatic therapy in spite of the negative results of the functional tests.