CHRONIC BRONCHIOLITIS AND ITS RELATION TO CHRONIC BRONCHITIS AND EMPHYSEMA

Olof Selroos
Department of Lung Medicine, University Hospital, Lund, Sweden

Bronchiolitis is an acute disease in children and almost always caused by viruses. It has been suggested that childhood bronchiolitis predisposes to increased airway reactivity and also to chronic airway obstruction in later life. This hypothesis has not been clearly proven.

During recent years an increasing interest has been devoted to bronchiolitis in adults. Bronchiolitis includes abnormalities in the so called small airways and that is airways of less than 2-3mm in diameter. The lesions consist of inflammation, goblet cell metaplasia and smooth muscle contraction. Later on mucous plugging, narrowing of airways and peribronchial fibrosis may be variably present. Smokers develop inflammation in the small airway already before they get respiratory symptoms.

Bronchiolitis is found in different situations and the term is used to describe the lesions in peripheral airways of patients with chronic bronchitis and emphysema. However, the term also applies to isolated small airway disease. This is an inhomogeneous group where bronchiolitis with increasing frequency seems to be diagnosed in patients with rheumatoid arthritis, sarcoidosis, allergic alveolitis and other diseases characterized by immunological disturbances. Finally, bronchiolitis is sometimes used as a description of minimal or mild chronic airway obstruction proposed as an early and potentially reversible stage in the development of a chronic obstructive lung disease.

Sensitive tests may detect small airway disease also when forced expiratory volumes are normal. The most sensitive tests seem to be the closing volume, the slope of phase III of the single-breath nitrogen washout test and the volume of isoflow when breathing a mixture of helium and air. Frequency dependence of compliance can be used but not for large-scale studies. Normally only a minor part of the total airway resistance is located to small airways. In chronic bronchitis and emphysema the peripheral resistance increases to 50-90% of the total resistance.

It is unknown how to detect individuals sensitive for developing a chronic obstructive lung disease and if early diagnosis of small airway disease well reduce the number of severe and fatal cases in the future. Smokers with a PiZZ phenotype of alpha1-protease inhibitor deficiency have a high risk of developing emphysema. This indicates that a protease-antiprotease imbalance might be of importance.

The presentation will include diagnosis of bronchiolitis and the role of bronchiolitis in patients with chronic bronchitis and emphysema and bronchiectasis. Available and wanted therapy will be discussed as well as the prognostic significance of measurement of the small airway parameters.