I. Changes in Bronchial Glands in Young Adults: Effects of Age and Smoking

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III. 1) Pathology - Bronchitis
2) Respiratory Structure and Function

IV. The anatomic basis of chronic bronchitis is an hypertrophy and hyperplasia of the glandular structures in the bronchial wall. Few studies have been directed to the early morphologic alterations in this entity. We have surveyed the bronchi and lungs in 48 males (ages 16-45) who died acutely or violently and without obvious respiratory disease. Bronchi from five different sites were analyzed by measurement of Reid Index and total gland area. We observed a trend of increased Reid Index and total gland area with age. In the main bronchus the Reid Index in the 16-20 year age group was 0.283 ± 0.054 (n=11), as compared to a high of 0.410 ± 0.111 (n=7) in the 36-40 year age range. A similar increase was reflected in the total gland area of these groups.

The cause of this change was investigated in a smaller group (n=19) in which historical information, including smoking habits, was obtained. The Reid Index of smokers was significantly greater that that of non-smokers. This was again corroborated in the total gland area data. No significant difference in these parameters was observed between younger smokers (age 26-36) and older smokers (age 37-46) nor between groups of "heavy" smokers (47-72 pack-years, mean 57) and "light" smokers (17-42 pack-years, mean 31). The general applicability and sensitivity of the Reid Index was challenged by comparing it to the

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total gland area alone and to the ratio of total gland area to bronchial wall area. The Reid Index, when carefully measured, did reflect the amount of gland substance in the bronchial wall for the sections in this study and appears to be a valid index of the proportion of glands within the bronchial wall.

This study indicates that bronchial gland hyperplasia exists in pre-clinical states and that smoking is an important factor in its genesis.

V. This or similar work has not been previously presented or published.