Abstract

Retrospective and prospective questionnaire and lung function data, collected during seven population health surveys over 18 years in Busselton, Western Australia, have been analysed for 92 subjects with asthma and 186 normal subjects. Subjects who had a minimum of four observations over an 18-year period were selected; the age range at first study was 22-69 years. Individual regression analyses of forced expiratory volume in one second (FEV1), adjusted for height, on age were used in analyses. Subjects with asthma had a greater rate of decline in FEV1 (p less than 0.01) and a lower baseline lung function (p less than 0.001). The mean loss of FEV1 in males of 1.7 m height was 50 ml/year in nonsmokers with asthma compared with 35 ml/year in the normal subjects. The effect of asthma was variable and not all subjects with asthma had steep rates of decline. There were insufficient numbers of smokers with asthma to draw conclusions about an effect of cigarette smoking additional to the effect of asthma. No relationship was found between rate of decline of FEV1 and age or atopic status. In subjects with asthma, bronchial hyperresponsiveness, which was measured at the end of the study, accounted for 9% of the variation in rate of decline of FEV1 and airflow limitation, measured by FEV1 FVC, accounted for 10%. Further studies are needed to determine whether the steep rates of decline found in subjects with asthma are preventable.