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LUNG ALERT

COPD in never smokers: a significant problem?

▲ Celli BR, Halbert RJ, Nordyke RJ, *et al*. Airway obstruction in never smokers: results from the Third National Health and Nutrition Examination Survey. *Am J Med* 2005;**118**:1364–72

Chronic obstructive pulmonary disease (COPD) is rarely considered in people who have never smoked. This paper reviews the results of a large US survey which involved a detailed questionnaire, physical examination, and spirometric testing. It looks particularly at airways obstruction in lifelong non-smokers.

A total of 10 276 people aged 30–80 years had spirometric evidence of airway obstruction in this cohort. The overall prevalence of obstructive airways disease was 165 per 1000. Never smokers made up 42% of the sampled group. The prevalence of airway obstruction in this group was 91 per 1000, 68.5% of whom reported no history of either asthma or COPD. The impact of other known risk factors for COPD such as occupational dust exposure, air pollution, and environmental tobacco smoke were assessed by multivariate analysis. None of these was associated with a significantly increased risk. A significantly increased risk was noted with increasing age, male sex, low body mass index, and a history of allergy.

These data can be extrapolated to suggest that there are 4.6 million lifelong non-smokers in the US with obstructive airways disease. Airways reversibility was not assessed, so an unquantified proportion of these patients could have asthma. Other known risk factors for COPD were not found to contribute in this study, although self-reporting of exposure may be inaccurate.

Further research into COPD in never smokers is warranted to clarify the aetiology, prognosis, and clinical significance of this poorly understood group of patients.

S Grundy
Specialist Registrar, Royal Oldham Hospital, UK; Seamusagrundy@aol.com

LUNG ALERT

Inhaled hypertonic saline, mechanisms, and improved lung function in cystic fibrosis

▲ Donaldson SH, Bennett WD, Zeman KL, *et al*. Mucus clearance and lung function in cystic fibrosis with hypertonic saline. *N Engl J Med* 2006;**354**:241–50

This study compared the effect of inhaled hypertonic saline on 24 patients with cystic fibrosis over a 28 day period. Subjects were assigned to two groups receiving pretreatment with either amiloride or placebo before saline inhalation. One hour mucus clearance rates, lung function tests, and quality of life scores were used as outcome measures.

One hour mucus clearance rates were significantly increased compared with baseline levels in both groups. However, only the placebo pretreatment group showed a measurable increase over a sustained period of >8 hours (1 hour mucus clearance rate 14.0 (2.0)% in the placebo pretreatment group compared with 7.0 (1.5)% in the amiloride pretreatment group, $p = 0.02$). Lung function tests showed an improvement in forced vital capacity (FVC) between baseline and treatment in the placebo group ($p = 0.05$) but not in the amiloride pretreatment group ($p = 0.83$). Similar results were found for forced expiratory volume in 1 second (FEV_1), forced expiratory flow at 25–75% of FVC ($FEF_{25–75}$), and quality of life scores. In vitro experiments showed sustained hydration of airway surface liquid with hypertonic saline, a response inhibited by amiloride.

This study shows that inhalation of hypertonic saline produces a modest but sustainable increase in mucus clearance rates, lung function tests, and quality of life in patients with cystic fibrosis. This beneficial effect was negated by pretreatment with amiloride. Hydration of airway surface liquid may be an important underlying mechanism.

A Gondker
Senior House Officer, Kettering General Hospital, Kettering, UK; anjaligondker@hotmail.com