

## LETTERS TO THE EDITOR

### A 10 year follow up of 180 adults with bronchial asthma: factors important for the decline in lung function

The interesting study of Dr C S Ulrick and others reported (January 1992;47:14-8) in *Thorax* provides some food for thought. The findings suggest that the decline in ventilatory function is larger in patients with intrinsic than in those with extrinsic asthma. In addition, the authors suggest that the annual decline in FEV<sub>1</sub> should be 29 ml for men and 25 ml for women; they base this assumption on predictions for FEV<sub>1</sub>.<sup>1</sup> The latter commonly derive from cross sectional studies; the age related findings in cross sectional data need not be representative of longitudinal findings—for example, due to cohort effects. Indeed, longitudinal observations on the same adult subjects show a smaller decline in FEV<sub>1</sub> than would be predicted from cross sectional findings<sup>2-4</sup>; they also show that the decline in FEV<sub>1</sub> is negligible in the second and third decade, increasing gradually with age thereafter.

Arising from this, I am concerned about the fact that the subjects with intrinsic asthma, who showed the greatest decline in FEV<sub>1</sub> in 10 years, had a median age of 43.5 years as compared with 31.0 years in the group with extrinsic asthma. Hence it is to be expected that the former group would have a greater annual decline in FEV<sub>1</sub> than the latter, and the findings of the study may be related more to age than to the diagnostic label.

Another concern relates to the expression of reversibility of airflow limitation, a problem that may lead to quite different interpretations of test results.<sup>5</sup>

There is evidence to show that the bronchodilator response should be expressed in absolute rather than in relative terms,<sup>5</sup> so that a small denominator may artificially inflate test statistics. In absolute terms the median improvements in FEV<sub>1</sub> in intrinsic and extrinsic asthma are not as different at the start of the study as the percentage improvement; therefore I am concerned that the correlation between initial "reversibility" and subsequent decline may be a spurious one.

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- 1 Quanjer PhH (ed). Standardized lung function testing. *Bull Eur Physiopathol Respir* 1983;19 (suppl 5):7-10.
- 2 Glindmeyer HW. Predictable confusion. *J Occup Med* 1981;23:845-9.
- 3 Glindmeyer HW, Diem JE, Jones RN, Weill H. Non-comparability of longitudinally and cross-sectionally determined annual change in spirometry. *Am Rev Respir Dis* 1982;125:544-8.
- 4 Burrows B, Lebowitz MD, Camilli AE, Knudson RJ. Longitudinal changes in forced expiratory volume in one second in adults. Methodological considerations and findings in healthy nonsmokers. *Am Rev Respir Dis* 1986;133:974-80.
- 5 Demedts M. The assessment of reversibility: what physiological test? *Eur Respir J* 1990;3:1084-7.

**AUTHORS' REPLY** We agree that comparing an observed annual decline in FEV<sub>1</sub> with the age regression coefficient obtained from cross sectional studies might not be appropriate, as it has earlier been shown that rate of decline estimates of lung function in adults calculated longitudinally are significantly lower than those obtained by cross sectional methods.<sup>1,2</sup> This observation was confirmed in a recently published study by Sherrill *et al.*<sup>3</sup> Surprisingly, however, this study by Sherrill and coworkers also showed that the plateau phase (that is, the 10 year period after the adolescent growth spurt, in which growth continues at a much lower rate) is followed by a constant rate of decline in FEV<sub>1</sub> that lasts throughout adulthood.

With the purpose of elimination of bias by restriction, we therefore reanalysed our data excluding males below 26 years and females below 27 years<sup>3</sup>; thereafter the two groups of patients were matched by age (median age in subjects with intrinsic asthma 40 years and extrinsic asthma 39.5 years). The patients with intrinsic asthma were found to have a median annual decrease in FEV<sub>1</sub> of 57.5 (95% confidence interval (CI) -53 to -71) ml, whereas the annual decline in patients with extrinsic asthma was 25 (CI 0 to -38) ml ( $p < 0.0001$ ). It therefore seems unlikely that the findings of our study are related more to age than to diagnostic label—that is, intrinsic or extrinsic asthma. Reversibility in FEV<sub>1</sub> was included in the multiple regression model in absolute terms (in litres) (table 3).

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- 1 Glindmeyer HW, Diem JE, Jones RN, Weill H. Non-comparability of longitudinally and cross-sectionally determined annual change in spirometry. *Am Rev Respir Dis* 1982;125:544-8.
- 2 Burrows B, Lebowitz MD, Camilli AE, Knudson RJ. Longitudinal changes in forced expiratory volume in one second in adults. Methodological considerations and findings in healthy nonsmokers. *Am Rev Respir Dis* 1986;133:974-80.
- 3 Sherrill DL, Lebowitz MD, Knudson RJ, Burrows B. Continuous longitudinal regression equations for pulmonary function measures. *Eur Respir J* 1992;5:452-62.

### Achilles tendon rupture: an underrated complication of corticosteroid treatment

We read with interest the reports of Achilles tendon rupture in patients receiving corticosteroid treatment by Dr DM Newham and others (November 1991;46:853-4). We would like to report a patient with systemic lupus erythematosus and immune thrombocytopenia who experienced this complication.

A white woman was diagnosed as having immune thrombocytopenia at the age of 36. She was treated initially with corticosteroids but did not improve and a splenectomy was performed. After this she required prednisolone 20 mg daily for two to three months a year to prevent thrombocytopenia and petechiae. When she was 52 systemic lupus erythematosus was diagnosed and higher doses of steroids were required daily. A month later while walking up a ramp, she felt a ripping sensation in the posterior aspect of

the left lower leg. Although this settled she had several other similar episodes over the next few months. On examination there was a palpable defect measuring 3 cm in the lower Achilles tendon associated with calf muscle atrophy. Because of her thrombocytopenia and corticosteroid treatment surgery was not performed and her ankle was placed in a plaster cast for three months. When it was removed the defect had resolved and full mobility of the ankle was regained. The rupture has not occurred since.

Spontaneous rupture of the Achilles tendon in patients taking corticosteroids for systemic lupus erythematosus has been reported previously.<sup>1</sup> This patient's age and disease are consistent with the previous reports. This patient, however, was having high doses of corticosteroids for only one month before a partial rupture occurred. This suggests that the inflammatory condition and its treatment with high doses of corticosteroids may predispose to spontaneous rupture of the Achilles tendon, or other tendons, particularly the prepatellar.<sup>2</sup>

Spontaneous rupture of the Achilles and patellar tendons are infrequent and perhaps an underreported complication. Tendon rupture should be watched for carefully, as early recognition may reduce morbidity.

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- 1 Lee MHL. Bilateral rupture of Achilles tendon. *BMJ* 1961;i:1829-30.
- 2 Martin JR, Wilson CL, Mathews WH. Bilateral rupture of the ligamenta patellae in a case of disseminated lupus erythematosus. *Arthr Rheum* 1958;1:548-52.

## NOTICES

### Dr HM (Bill) Foreman Memorial fund

The trustees of the above fund invite applications for grants relating to study in respiratory disease. Limited funds are available for registered medical practitioners to assist them in travelling to countries other than their own to study respiratory disease, and also to support clinical research abroad. Intending applicants should write for further details to Dr Brian H Davies, Llandough Hospital, Penarth, South Glamorgan CF6 1XX.

### International Meeting of Thoracic Surgery

The First International Meeting of Thoracic Surgery will be held in Barcelona on 9 and 10 October 1992. Details may be obtained from the Congress Secretariat, RCT Asociados, Aulèstia i Pijoan 12, 08012 Barcelona, Spain (fax 34-3-4156904).