

Our study investigated reversibility of FEV₁ and FVC response to 200 µg of inhaled salbutamol in patients with a forced expiratory ratio < 60%, labelled by clinicians as asthma (n = 481) or chronic bronchitis/emphysema (n = 356) and in a control group with sarcoidosis (n = 294). While reversibility in chronic bronchitis and sarcoidosis was normally distributed in asthma it was skewed and the asthma group could be split into two normally distributed populations (asthma group 1 mean 8.1% ± 9.1%, n = 238; asthma group 2 mean 27.8% ± 16%, n = 247). Asthma, chronic bronchitis, and emphysema all had significantly greater reversibility of FEV₁ than sarcoidosis, in which it approximates to that seen in normal subjects (2.5% ± 3.9; n = 75 Watanabe *et al. Am Rev Respir Dis* 1974; 109: 550). We conclude that although there is a difference in reversibility between the two populations with asthma and chronic bronchitis/emphysema there is a considerable overlap even at levels of reversibility greater than 15%. The use of diagnostic labels which imply differences in reversibility is a great oversimplification which can lead to inadequate treatment.

Theophylline prescribing, serum levels, and toxicity

AA WOODCOCK, MA JOHNSON, DM GEDDES Prescriptions of slow-release theophylline preparations have risen five-fold in the last five years at the Brompton Hospital. Since March 1981 1913 serum theophylline assays have been performed (86.4% inpatients 13.6% outpatients). The number of assays per month rose three-fold following a postgraduate lecture in February 1982 (60–199 per month), but the proportion of assays in each of three groups (group A < 10 mg/l; group B 10–20 mg/l; group C > 20 mg/l) remained unchanged (A v B v C; 49% v 43% v 8%). Theophylline prescribing was assessed retrospectively in 50 stable outpatients randomly selected from each of groups A and B and the 13 stable outpatients in group C. Oral theophylline dosage differed between the groups (8.6 ± 3.2 mg/kg/day v 12.1 ± 4.1 v 17.6 ± 6.6; A v B v C (mean ± SD)) but there was considerable overlap between the range of dosage in each group. Side effects were equal in groups A and B but greater in group C (for example, nausea: 26% v 24% v 62%). Other factors related to toxic

levels (group C) were abnormal liver function (36%), diuretic therapy (46%), and duplicate prescribing of different theophylline preparations (23%). All group C patients but only 30% of group A patients had subsequent dosage adjustments. Serious toxicity (serum theophylline > 25 mg/l) occurred in a total of 28 patients (six outpatients and nine inpatients on infusion, 12 inpatients on oral therapy). Three patients had fits (two died) and one was successfully resuscitated after cardiac arrest. Two further patients who were admitted to other hospitals with fits (one died) were suspected of aminophylline toxicity but the theophylline assay was not available. We conclude that theophyllines are difficult to use, with considerable side effects, morbidity, and mortality. Theophylline levels are mainly used to detect toxicity in inpatients and rarely to individuals dosage in outpatients. Unsuspected toxicity in outpatients may be responsible for a considerable hidden morbidity.

Cycling for patients with chronic airways obstruction

AA WOODCOCK, MA JOHNSON We have studied cycling in seven patients with severe chronic airflow limitation disabled by breathlessness. Patients were able to cycle three to four times further than they could walk in six minutes, which is greater than the increase seen in normal subjects. Patients travelled significantly further on a lightweight tricycle (1147 metres ± 197) than on a heavy "NHS" tricycle (833 ± 192 metres) or a bicycle (1055 ± 278 metres) or walking (289 metres ± 75). Patients were also less breathless after riding the lightweight tricycle (visual analogue score 6.8 ± 2.2) than the NHS tricycle (8.1 ± 0.8) or the bicycle (7.6 ± 2.8) or walking (7.9 ± 2.7) despite having travelled the greatest distance. Oxygen consumption during cycling was less than half that during walking at an equivalent speed. Patients quickly adapted to the lightweight tricycle, which had the advantages of lightness and stability. Patients could adopt a good breathing posture and if they became breathless could stop to recover without dismounting. The improvement in exercise tolerance on a cycle is considerably greater than that achieved by conventional medical treatment, and we believe that a lightweight tricycle has potential in rehabilitation.

Correction

Jejunal bypass of the cardia for benign stricture

We regret that in the January issue the list of contents gave the title of the paper by J Borrie and RW Bunton incorrectly. It should be "Jejunal bypass of the cardia for benign stricture: report of six cases," as on page 31.