

Correspondence

Effect of manual percussion on tracheobronchial clearance in patients with chronic airflow obstruction and excessive tracheobronchial secretion

SIR,—Objective assessment of the effectiveness of the various components of chest physiotherapy is important, so we were interested to read the paper of Dr CP van der Schans and others (June 1986;41:448-52). The paper concludes that manual percussion has a very limited role in patients with chronic airflow obstruction and is in agreement with previously published work, not referred to by the authors.^{1 2}

Contrary to the authors' interpretation of their results, they have presented no proof that manual percussion alone improves tracheobronchial clearance in their patients. There was no "control" day in their study when patients lay horizontally in a supine position for 50 minutes without manual percussion. The effect of this "control" manoeuvre, which may in itself affect the clearance curve, is unknown. Secondly, the different study regimens differ by more than simply the inclusion or omission of manual percussion or postural drainage. The treatment regimens, including postural drainage, began 10 minutes earlier than the regimen with manual percussion alone. Moreover, the duration of percussion when combined with postural drainage lasted only five minutes, compared with 10 minutes in the regimen with manual percussion alone.

We would submit that any objective value of manual percussion has yet to be established.

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- 1 Sutton PP *et al.* Assessment of percussion, vibratory-shaking and breathing exercises in chest physiotherapy. *Eur J Respir Dis* 1985;66:147-52.
- 2 Wollmer P *et al.* Inefficiency of chest percussion in the physical therapy of chronic bronchitis. *Eur J Respir Dis* 1985;66:233-9.

SIR,—We agree with the observation of Dr CP van der Schans and others (June 1986;41:448-52) that the radioaerosol technique provides an objective method for critically evaluating chest physiotherapy regimens. Their main finding—namely, that the addition of percussion to a regimen that incorporates postural drainage, coughing and breathing exercises does not enhance tracheobronchial clearance—is similar to the conclusion of our own study.¹

We do feel, however, that it is important to distinguish clearly between cough and the forced expiration technique (FET) as this may explain past conflicting results concerning the efficacy of coughing. In another radioaerosol study² we compared these and showed both radioaerosol and sputum clearance to be greater when the FET was used in place of directed cough—particularly when combined with postural drainage. We suggest that the FET and postural drainage, which are clinically superior to conventional physiotherapy,³ are responsible for most of the mucus mobilisation and

should now form the basis of routine chest physiotherapy programmes.

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- 1 Sutton PP, Lopez-Vidriero MT, Pavia D, *et al.* Assessment of percussion, vibratory-shaking and breathing exercises in chest physiotherapy. *Eur J Respir Dis* 1985;66:147-52.
- 2 Sutton PP, Parker RA, Webber BA, *et al.* Assessment of the forced expiration technique, postural drainage and directed coughing in chest physiotherapy. *Eur J Respir Dis* 1983;64:62-8.
- 3 Pryor JA, Webber BA, Hodson ME, Batten JC. Evaluation of the forced expiration technique as an adjunct to postural drainage in the treatment of cystic fibrosis. *Br Med J* 1979;ii:417-8.

* * * These letters were sent to the authors, who reply below.

SIR,—We agree with Drs Currie and Cole that our conclusion that manual percussion is relatively ineffective is similar to the conclusions of Sutton *et al* and Wollmer *et al.* These studies were, however, published after submission of our own manuscript. We agree that adding a control day in our study might be valuable. It is, however, no guarantee of more reliable results. Although all patients were in a stable condition, slight fluctuations in pulmonary function could have masked the small effect of manual percussion. For this reason we used the periods without percussion as a control of the percussion period. We agree that, although there exists a theoretical possibility that even without percussion the clearance between 20 and 30 minutes could be greater than in the control periods, that is highly improbable.

The different protocols in our study were selected especially because they are used clinically in this way. Protocol I (manual percussion alone) and protocol II (postural drainage, coughing, breathing exercises, and manual percussion) were compared as two well known methods of chest physiotherapy.

Although the percussion period in protocol I was twice as long, protocol II is much more effective even after 10 minutes. Protocols II and III are similar in design, except for the percussion.

We think that the idea that manual percussion is of no use at all is premature. The results of our study suggest that manual percussion might be of use under some circumstances—for example, when postural drainage or coughing or both are not possible. We agree that more studies have to be done to evaluate the effect of manual percussion under different circumstances and with different frequencies.

With regard to the letter by Drs Sutton and Clarke, we agree that one of our conclusions is similar to that of their own paper—namely, that manual percussion does not add to the effectiveness of chest physiotherapy that consists of coughing, breathing exercises, and postural drainage. But this observation is only relative, because of our finding that manual percussion as a *single* procedure can slightly but

significantly increase mucus clearance. After 10 minutes of manual percussion alone we found an increasing amount of radioactive tracer in the central airways. This finding is consistent with the clinical observation that some patients expectorate the mucus only 20–30 minutes after a period of manual percussion. Although manual percussion is a relatively ineffective method, it might thus be useful in some situations (for example, when there is no effective cough and the patient cannot tolerate postural drainage). As the retention of mucus is a complex problem with many different causes we doubt if there should be a single routine form of physiotherapy. A treatment which is effective in patients with cystic fibrosis need not be effective in patients with, for instance, severe emphysema. Therefore comparison of stud-

ies that include different types of patients is not valid.

We agree, however, that FET is an interesting method that certainly is of value in some categories of patient.

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Notice

Monitoring, surveillance, causes, and effects: respiratory epidemiology and the clinician

A one day meeting, on 1 May 1987, covering aspects of clinical respiratory epidemiology, including the Communicable Diseases Surveillance Centre–British Thoracic Society Rare Respiratory Disease Surveillance Scheme, will be held at the National Motorcycle Museum, near Birmingham, under the

auspices of the Midland Thoracic Society. It will use the Group Interactive Computer Keypad System. Speakers will be from the CDSC, East Birmingham Hospital, and the Royal College of General Practitioners Research Unit. The guest speaker will be Professor David Miller, St Mary's Hospital, London. Details and application forms may be obtained from Miss Megan Wood, Postgraduate Centre, East Birmingham Hospital, Birmingham B9 5ST.