Randomised crossover study of the Flutter device and the active cycle of breathing technique in non-cystic fibrosis bronchiectasis

C S Thompson, S Harrison, J Ashley, K Day, D L Smith

Background: Airway clearance techniques are an important part of the routine care of patients with bronchiectasis. The use of the Flutter, a hand held pipe-like device causing oscillating positive expiratory pressure within the airways, has been proposed as an alternative to more conventional airway clearance techniques.

Methods: A randomised crossover study was performed in 17 stable patients with non-cystic fibrosis bronchiectasis at home, in which 4 weeks of daily active cycle of breathing technique (ACBT) were compared with 4 weeks of daily physiotherapy with the Flutter device.

Results: No significant differences between the two techniques were found. Median weekly sputum weights were similar with a median treatment difference of 7.64 g (p=0.77) and there was no evidence of treatment order or order interaction effects (p=0.70). Health status (Chronic Respiratory Disease Questionnaire) and ventilatory function did not change significantly during either treatment period. There was no significant change in peak expiratory flow rate or in breathlessness (Borg score) after individual physiotherapy sessions with either technique. A questionnaire indicated subjectively that patients preferred the Flutter (11/17) to ACBT for routine use.

Conclusions: Daily use of the Flutter device in the home is as effective as ACBT in patients with non-cystic fibrosis bronchiectasis and has a high level of patient acceptability.
The Flutter device in non-cystic fibrosis bronchiectasis

### RESULTS

### DISCUSSION
1 month. Many earlier studies\textsuperscript{2–5, 15} did not include comparison with the now widely accepted ACBT, nor did they include FET with the Flutter,\textsuperscript{15} and this may explain why we have found the technique to be effective where others have not.\textsuperscript{15}

Ventilatory function, sputum production, and health related quality of life are not the only important outcome measures; exercise capacity, use of medication, the number and duration of infective exacerbations, and cost effectiveness are other parameters not addressed by our study which could be incorporated into a future study over a longer period.

The Flutter was well tolerated; there were no adverse events with either technique, although one patient reported nausea after using the Flutter and a pneumothorax has been reported in the literature in a patient with panbronchiolitis.\textsuperscript{15} Like others,\textsuperscript{2–5, 15} we have found the Flutter to have a high level of patient acceptability; 11 of the 17 patients preferred the Flutter for routine use and its ease of use was commented upon.

A recent review of airway clearance techniques in adults\textsuperscript{15} has suggested that, if the objective differences are small between the different techniques, then individual preferences are likely to play an important part in compliance with treatment. We have found the Flutter to be as effective as the ACBT in the home in a group of patients with non-CF bronchiectasis and therefore suggest that individuals with bronchiectasis should be offered a trial of the Flutter and, if preferred by them, it should be recommended for regular daily use.

ACKNOWLEDGEMENTS

The authors acknowledge the Medical Illustration Department, K Parry and Dr C Rogers, Research and Development Unit, North Bristol NHS Trust.

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Funded by Frenchay Respiratory Research Fund.

Conflict of interest: none.

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Thorax 2002 57: 446-448
doi: 10.1136/thorax.57.5.446

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