

A pilot study of pulmonary rehabilitation in primary care

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SUMMARY

Pulmonary rehabilitation is an effective intervention for patients with chronic obstructive pulmonary disease (COPD). It is usually available only through selected hospitals. A pilot study was undertaken to see if pulmonary rehabilitation performed by the primary health care team in one practice was feasible. Fourteen patients were recruited; 13 completed the programme and one year of follow-up. The programme was well received by patients and staff. There were not enough suitable patients among a practice list of 10 500 to justify the running of this programme for a single practice; one primary care group would suffice.

Keywords: respiratory disease; pulmonary rehabilitation; primary health care.

Introduction

CHRONIC obstructive pulmonary disease (COPD) is a common progressive debilitating disease, which incurs enormous costs for the health service and society. It carries 20 times the mortality of asthma, but has received little attention until recently,¹ especially in primary care. Pulmonary rehabilitation has been shown to improve quality of life and exercise tolerance and reduce dependency in patients with symptomatic COPD.^{2,3} The technology required is simple⁴ and the resources may be available in many primary health care teams; however, pulmonary rehabilitation is usually available only in selected secondary care units.

Methods

Patients suffering from COPD were identified by the practice doctors and nurses. Entry criteria included: history of cigarette smoking, significant disability from breathlessness, and spirometry showing FEV₁ (forced expiratory volume in one second) less than 60% of expected on more than one occasion. Patients requiring oxygen during exercise were excluded, as were those with pulse oximetry showing desaturation at rest (SaO₂ < 90%).

A series of seven group meetings for between seven and nine patients were held at a community health clinic, at weekly intervals. Each session consisted of one hour of exercise and one hour on education, separated by a tea break. The rehabilitation team included a general practitioner, respiratory nurse, health visitor, counsellor and a physiotherapist.

The exercise programme consisted of group work — warm up, exercise, then relaxation, with a daily exercise routine to be done at home, based mainly on walking. Education focused on:

- the causes, effects and treatment of COPD, smoking cessation (doctor and respiratory nurse);
- emotional aspects of respiratory disability and thinking positively about the future (counsellor); and
- importance of diet and healthy lifestyle, benefits and carer support (health visitor).

Assessments included the shuttle-walking test⁵ and questionnaires: the Chronic Respiratory Disease Questionnaire⁶ (CRDQ), the Hospital Anxiety and Depression Score (HADS), and the Short Breathing Problems Questionnaire (SBPQ). Assessments were made before and after rehabilitation and at three, six and 12 months thereafter. Follow-up group meetings were held every one to two months, providing a social function and maintaining motivation for exercise and independence.

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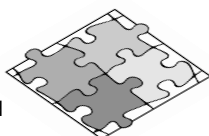
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HOW THIS FITS IN*What do we know?*

Pulmonary rehabilitation improves mood and exercise tolerance in patients with impaired lung function. Rehabilitation is usually only performed in specialist hospital units, which may be inadequate to meet the demands for this common condition.

What does this paper add?

A low intensity form of pulmonary rehabilitation performed by the primary health care team in one practice was feasible and well received.

**Results**

Approximately 30 patients were identified who met the entry criteria. Fourteen patients were recruited, one left the area, the remaining 13 completed the programme and the 12-month follow-up. The main reasons given by invited patients for not taking part were: co-morbidity, intercurrent illness, other commitments and, in one case, anxiety. There were eight women and six men, age range = 50 to 81 years. The mean FEV₁ was 1.05 litres, range = 0.7 to 1.9, the mean FEV₁ % of expected value was 43.4%, range = 24% to 63%, indicating a severity of airflow obstruction comparable to those seen in hospital rehabilitation programmes.

The programme was well received by patients and staff. A questionnaire indicated a high level of satisfaction at the end of rehabilitation, all patients rating the overall programme as good or very good. Patients were very enthusiastic: 'This is the highlight of my week', 'It is so depressing being told there is nothing that can be done. This programme has shown me different and most of it I can do for myself'. There was a mean 50-metre improvement in shuttle-walking test after the programme, an increase of 37% (95% confidence interval [CI] = 0 to 74), but this returned to baseline over the next 12 months. Sustained improvements were found in health status measures. The CRDQ showed marked improvements: the mean total score rose by 20 points (an increase of 47% [95% CI = 16 to 78]), the minimum clinically important difference is 11 points. The mean HADS also improved: anxiety by 7% (95% CI = -32 to 18); depression by 13% (95% CI = -36 to 11) and the SBPQ fell by 10% (95% CI = -30 to 9).

The costs of running the programme were estimated at £1410 (£113.07 per completed patient), set-up costs including equipment and training were £1391.35. Total rehabilitation costs were £220.10 per patient. Analysis of use of primary and secondary care services and drug prescribing was performed for 12 months before and 12 months after rehabilitation. No important differences were found, although there was reduction in GP visits after the programme (13 before and two after).

Discussion

This is a small pilot study in primary care and great caution should be used in interpreting the findings. The project highlights many of the issues which confront workers in primary care who seek to establish pulmonary rehabilitation pro-

grammes. The results indicate that it is feasible for a multi-disciplinary primary health care team to establish a programme in one practice. The results appear to show improvements in exercise tolerance and health status similar to those seen in leading hospital programmes,^{2,7,8} but a larger study is required to confirm this. Ours was a much less intensive programme (14 hours compared with 28 to 100 hours in a typical hospital). The total rehabilitation costs were £220.10 per completed patient, but these would be much less with more patients, e.g. for 100 patients, the total cost per patient would be £126.98. This compares with the £200 to £400 cost for many British hospital programmes.^{2,7,8}

The advantages of locating the programme in the community include less distance to travel, easier parking, and a sense of community among the patients. There was excellent compliance, but the training and energy required to set up such a programme is not justified in a single practice as there were only enough patients to run two groups. The logical place for pulmonary rehabilitation in future may be in the community in one or more primary care groups.

References

1. British Thoracic Society. Guidelines for the management of chronic obstructive pulmonary disease. *Thorax* 1997; **52**: S1-S28.
2. Report to the Development and Evaluation Committee No. 94: *Hospital based pulmonary rehabilitation programmes for patients with severe chronic obstructive pulmonary disease*. The Wessex Institute, March 1999.
3. Sridhar MK. Pulmonary rehabilitation. *BMJ* 1997; **314**: 1361.
4. Wijkstra PJ. Pulmonary rehabilitation at home. *Thorax* 1996; **51**: 117-118.
5. Singh SJ, Morgan MDL, Scott S, *et al.* Development of a shuttle walking test of disability in patients with chronic airways obstruction. *Thorax* 1992; **47**: 1019-1024.
6. Guyatt GH, Berman LB, Townsend M, *et al.* A measure of quality of life for clinical trials in chronic lung disease. *Thorax* 1987; **42**: 773-778.
7. Griffiths TJ, Burr ML, Campbell IA, *et al.* Results at one year of outpatient multidisciplinary pulmonary rehabilitation: a randomised controlled trial. *Lancet* 2000; **355**: 362-368.
8. Singh SJ, Smith DL, Hyland ME, Morgan MDL. A short outpatient pulmonary rehabilitation programme: immediate and longer term effects on exercise performance and quality of life. *Respir Med* 1998; **92**: 1146-1154.