Pulmonary rehabilitation improves quality of life and exercise capacity

This Cochrane systematic review found that pulmonary rehabilitation for people with chronic obstructive pulmonary disease (COPD) improved quality of life and exercise capacity compared to usual care. It also relieved shortness of breath and fatigue. This updated review provides stronger evidence to support NICE’s recommendation that pulmonary rehabilitation should be available to everyone who is disabled by COPD. The optimal length, number of sessions and type of staff delivering the pulmonary rehabilitation programmes is not yet clear.

"This review confirms the place of pulmonary rehabilitation, a supervised programme of exercise training and education delivered by a multidisciplinary team, as one of the most important and highest value elements in the management of COPD. Trials show consistently that pulmonary rehabilitation improves breathlessness, exercise capacity and quality of life. These improvements are clinically as well as statistically significant. Despite existing strong recommendations in NICE guidance many patients still have difficulty accessing or are unable to access pulmonary rehabilitation programmes and this needs to be addressed urgently."

- Dr Nicholas Hopkinson, Clinical Senior Lecturer, Imperial College & Honorary Consultant Chest Physician, The Royal Brompton Hospital

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WHY WAS THIS STUDY NEEDED?

Three million people live with COPD in England, which includes diseases like chronic bronchitis and emphysema. The NHS spends about £1 billion a year on treatment. Pulmonary rehabilitation is a treatment package that involves exercise training and often educational and psychological support, normally lasting for at least four weeks. A 2006 Cochrane review showed that, compared with usual care, pulmonary rehabilitation improved quality of life, but not exercise capacity. This 2015 Cochrane review updates that work to include 34 newer trials. These have taken a more focussed look at disease related quality of life focussing on walking distance, a measure of exercise capacity.

WHAT DID THIS STUDY DO?

This was a systematic review of randomised controlled trials (RCTs) comparing the effect of pulmonary rehabilitation or usual care on quality of life and exercise capacity in people with COPD. Quality of life measurements included shortness of breath and fatigue up to three months after the completion of the intervention. Standard Cochrane systematic review methods were used and the RCTs were generally at low risk of bias, so the results should be reliable.

WHAT DID IT FIND?

Sixty five RCTs were included, with a total of 3,822 participants. Pulmonary rehabilitation improved overall quality of life, shortness of breath and exercise capacity, compared with usual care. These improvements were large enough to be considered clinically significant.

- Shortness of breath improved by 0.8 on a scale of 1 to 7
- Overall quality of life improved by 8 points on a 100 point scale
- Walking distance improved by 40 metres

WHAT DOES CURRENT GUIDANCE SAY ON THIS ISSUE?

The current 2010 NICE guideline states that pulmonary rehabilitation should be made available to all patients who consider themselves “functionally disabled” by COPD, including those needing recent hospital care. Rehabilitation programmes should be held at a time and place that suit patients, and include “multicomponent, multidisciplinary interventions” (physical training, disease education, nutritional, psychological and behavioural intervention) tailored to the individual’s needs. Patients should be made aware of the benefits of pulmonary rehabilitation and the commitment required.

The NICE guideline states that there is good evidence that pulmonary rehabilitation is cost-effective in the outpatient setting compared to usual care.

WHAT ARE THE IMPLICATIONS?

The findings of this latest review add further support to NICE guidance that pulmonary rehabilitation is effective and should be made available to all eligible people with COPD. The authors suggested that future research studies should focus on identifying which components of pulmonary rehabilitation are essential and how long treatment effects last.

In a 2011 audit of 239 UK respiratory units, only 58% provided pulmonary rehabilitation for all eligible patients. This suggests a gap in clinical practice or commissioning of this service.

Pulmonary rehabilitation is a complex intervention, incorporating physical training, disease education, and nutritional, psychological and behavioural intervention. Implementation support from NICE is available. The University Hospitals of Leicester NHS Trust has also published a QIPP case study of a successful implementation of a pulmonary rehabilitation programme, in this case led by a team of COPD specialist nurses.
Some evidence suggests that any programme should include at least four weeks of exercise training; NICE recommends six weeks. However the optimal duration of programmes, number of sessions offered per week, and type of staff required to deliver pulmonary rehabilitation programmes remains unclear. Subgroup analysis in this review suggested that exercise only interventions were as effective as other, more complex interventions. Focussing on the critical components of the programme may therefore lead to improvements in cost-effectiveness.

DEFINITIONS

The joint American Thoracic Society and European Respiratory Society define pulmonary rehabilitation as: “a comprehensive intervention based on a thorough patient assessment followed by patient tailored therapies that include, but are not limited to, exercise training, education, and behaviour change, designed to improve the physical and psychological condition of people with chronic respiratory disease and to promote the long-term adherence to health enhancing behaviours.”

CITATION


BIBLIOGRAPHY

- The Development and Implementation of a COPD Discharge Care Bundle at University Hospitals of Leicester NHS Trust. QIPP Case study. [Leicester]: University Hospitals of Leicester NHS Trust; 2012

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