

Incorporating patients with pulmonary hypertension associated with respiratory disease into pulmonary rehabilitation – is it feasible?

Purpose

The benefits of pulmonary rehabilitation (PR) in the treatment of respiratory diseases are well documented. However PR for the treatment of patients with pulmonary hypertension is more novel. Studies have reported improvements in exercise tolerance and health status but have largely excluded patients with pulmonary hypertension associated with lung disease (group 3 pulmonary hypertension). Although patients with group 3 pulmonary hypertension are currently eligible for PR, due to their underlying respiratory pathology, the feasibility of their inclusion is poorly understood.

The aim of this study was to determine the feasibility of including patients with group 3 pulmonary hypertension in a standard UK based PR programme by describing clinical outcomes, adherence and safety.

Methods

A retrospective casenote review was conducted for patients with group 3 pulmonary hypertension attending PR over a 3-year period (2015-2018), at a single secondary care site. Data included pre- and post-PR six-minute walk distance (6MWD), Medical Research Council breathlessness scale (MRC), COPD assessment test (CAT), patient health questionnaire-9 (PHQ-9) and generalised anxiety disorder-7 (GAD-7). Completion rates for PR and adverse events were recorded.

Results

Thirty-one patients with group 3 pulmonary hypertension were enrolled in PR. There was a significant improvement in 6MWD (median change 30m; 95%CI

5 to 70m; $p=0.023$) and MRC (median change -1.0; 95%CI -1.0 to -0.5; $p=0.005$) following PR, with no significant changes in CAT, PHQ-9 or GAD-7.

Completion rates for PR were 65%. Low to medium risk adverse events did occur, most commonly, oxygen desaturation below 80% (11 patients). Of these, 10 patients reported mild breathlessness, which was not unduly unpleasant, one patient experienced severe unpleasant breathlessness. All but one patient (who was unable to tolerate the recommended flow rate) desaturation was managed with supplementary oxygen during exercise. Other adverse events included musculoskeletal pain ($n=2$), mild hypotension ($n=1$) and soft-tissue injury occurring during exercise ($n=1$).

Conclusions

This small retrospective service evaluation provides evidence that standard UK based PR is feasible in terms of adherence and may result in clinically meaningful improvements in exercise tolerance. Whilst not risk free, it appears to be low risk. The impact of PR on health status in this group is less clear, and may reflect the specific health status measures used or sample size. Future studies should prioritise this area.

Implications

Our findings suggest that PR services can include patients with group 3 pulmonary hypertension into standard PR programmes. The incidence of adverse events suggests extra monitoring of this patient group is required, particularly with regard to oxygen desaturation and oxygen therapy must be available to minimise desaturation where possible during classes. Clinicians should be aware that the impact of PR on health status is unclear and this highlights the need for ongoing individualised holistic assessments for all patients attending PR. Further research is required to establish the optimum training regime for this patient group.