Spoken sessions

Abstract S122 Table 1 First year post PEA haemodynamics and exercise capacity predict long term risk of death

Predictor value	Value	Hazard ratio	95% confidence intervals
6 minute walk distance (m)	110	3.03	1.82–5.04
	230	1.74	1.35–2.24
	350	Reference	
	470	0.57	0.45–0.74
	590	0.33	0.20–0.55
Mean pulmonary artery pressure (mmHg)	15	0.67	0.55–0.83
	25	Reference	
	35	1.49	1.21–1.83
	45	2.21	1.46–3.36
	55	3.29	1.76–6.16
Cardiac index (L/min/m ²)	1.5	1.60	1.00–2.56
	2	1.26	1.00–1.60
	2.5	Reference	
	3	0.79	0.62–1.00
	3.5	0.63	0.39–1.00
Pulmonary vascular resistance (Dynes/sec/cm ⁵)	4	0.49	0.24–1.00
	50	0.51	0.37–0.70
	250	Reference	
	450	1.95	1.43–2.67
	650	3.81	2.03–7.14
	850	7.44	2.90–19.08

were in WHO functional class 1 or 2 and there was a reduction in the mean mPAP to 27 ± 9 mmHg and PVR to 286 ± 198 dynes/sec/cm⁵ by 12 months (p).

Conclusion There was prolonged haemodynamic improvement but targeted therapy was used in 23% of patients with a mean follow-up of 4.3 years. The 10-year survival was 72% with mortality predominantly in the peri-operative period and later due to causes unrelated to CTEPH.

Novel approaches to rehabilitation and exercise therapy in COPD

S123 DOES EXERCISING WITH DOMICILIARY NON-INVASIVE VENTILATION (NIV) IMPROVE QUALITY OF LIFE (QOL) IN PATIENTS WITH SEVERE CHRONIC OBSTRUCTIVE PULMONARY DISEASE (COPD)?

¹KAM Buchan, ²K Badlan, ²M Fletcher, ¹AH Kendrick. ¹University Hospitals Bristol NHS Trust, Bristol, UK; ²University of the West of England, Bristol, UK

10.1136/thoraxjnl-2014-206260.129

Introduction and objectives Patients with severe COPD experience breathlessness leading to exercise limitation impacting on QoL. Pulmonary rehabilitation (PR) can improve QoL, but those with the severest disease are frequently hospitalised and cannot readily access PR. Previous studies have trialled positive pressure as a means of relieving ventilatory load, allowing more severe COPD patients to exercise.¹ Studies have assessed mixed pathology or stable COPD patients.^{2,3} In this study, we have assessed patients with severe COPD admitted to hospital with Type 2 respiratory failure and acidosis treated with acute NIV.

Methods 18 patients (11 female), recruited during admission were randomised into 3 groups. Group 1 received standard hospital physiotherapy care; Group 2 exercised on NIV (Trilogy 100, Philips-Respironics) with a mean pressure support of 10 cmH₂O twice weekly during admission; Group 3 exercised on NIV twice weekly

Abstract S123 Table 1 Results for SGRQ and LCADL from baseline to M3

Group		1 (n = 6)	2 (n = 5)	3 (n = 4)
SGRQ	Baseline	81.06 ± 9.27	74.27 ± 20.94	69.54 ± 14.35
	M3	73.89 ± 16.20	80.11 ± 13.15	50.25 ± 24.55
Mean Change		-7.17	-5.84	-19.29
LCADL	Baseline	53.00 ± 13.07	47 ± 9.49	49.83 ± 15.69
	M3	51.67 ± 7.65	56.6 ± 5.50	40.75 ± 13.94
Mean Change		-1.33	+9.6	-9.08

during hospital admission and continued this at home for 3 months post-discharge. Exercising included weights, pedal cycling and walking. QoL was assessed using the St Georges Respiratory Questionnaire (SGRQ) and the London Chest Activities of Daily Living Questionnaire (LCADL). Mean changes in total scores for SGRQ and LCADL were compared between baseline and at 3 months (M3). Data are mean ± SD or mean (range).

Results The group (n = 18) age was 66.5 years [46–97], FEV₁: 25% predicted [9–51%] and MRC score 3 [1–4]. 3/18 patients died during the study. The results are presented in Table 1.

Conclusion Patients exercising with NIV, in hospital and at home twice weekly (Group 3) showed the greatest improvement in QoL, compared to the other two groups. The use of NIV during exercise at home may assist patients unable to access pulmonary rehabilitation.

REFERENCES

- 1 Maltais F et al. *Am J Respir Crit Care Med* 1995;151:1027–33
- 2 Menadue C et al. *Respiratory Medicine* 2010;104:219–227
- 3 Dyer F et al. *BMC Pulmonary Medicine* 2011;11:581–26

S124 EFFECTS OF TWO ADAPTED PHYSICAL ACTIVITY TRAINING PROGRAMS ON PULMONARY FUNCTIONALITY AND EXERCISE CAPACITY IN PATIENTS AFFECTED BY CHRONIC OBSTRUCTIVE PULMONARY DISEASE

¹AS Delussu, ²A Laudisio, ¹C Pedone, ²L Costanzo, ¹F Di Meo, ¹C Pizzoli, ¹S Lubich, ¹L Polidori, ¹F Paradisi, ¹M Traballasi, ¹C Pisicchio, ¹R Antonelli Incalzi. ¹Fondazione Santa Lucia, IRCCS, Roma, Italia; ²Area Di Geriatria, Università Campus Bio-Medico, Roma, Italia

10.1136/thoraxjnl-2014-206260.130

Introduction It has been reported the efficacy of adapted physical activity (APA) in exercise capacity improvement.¹ Nevertheless, there is still no consensus on training modalities and intensities to be prescribed in patients affected by chronic obstructive pulmonary disease (COPD). The aim of the study was to assess the effects of two 16 weeks APA training programs (endurance vs endurance + strength) on respiratory parameters (FVC%, FEV₁%, FEV₁/FVC %) and exercise capacity (V'O₂ peak) immediately after APA training program (first follow up: FU1) and after six months (second follow up: FU2)

Methods Sixty five COPD patients were randomly assigned to endurance training (ET) or to endurance + strength training (EST). All Patients underwent 3 sessions per week. For ET, as upper intensity training limits were considered 40–50% heart rate reserve; for EST training limits were considered 40–50% heart rate reserve and 50% 1RM.² Before training programs, at FU1 and at FU2, all patients underwent: clinical assessment, respiratory functionality tests, maximal cardiopulmonary test. Repeated measures ANOVA

was adopted to assess parameters' variations. Statistical significance was set for $p < 0.05$.

Results Thirty-five patients (14M/21F; age 71 ± 9 y; FEV₁ $61 \pm 14\%$ of predicted) completed the ET program; 30 patients (18M/12F; age 74 ± 6 y; FEV₁ $59 \pm 18\%$ of predicted) completed the EST program. In both ET and EST, respiratory parameters did not change. ET FVC%, FEV1%, FEV1/FVC% values at FU1 were 76 ± 14 , 61 ± 16 , 64 ± 12 respectively; at FU2 76 ± 16 , 59 ± 16 , 61 ± 12 . For EST FVC%, FEV1%, FEV1/FVC% values at FU1 were 79 ± 14 , 59 ± 16 , 58 ± 13 respectively; at FU2 83 ± 12 , 64 ± 16 , 60 ± 13 . In ET V'O₂ peak showed significant variations: 17.7 ± 3.1 , 18.8 ± 3.4 , 16.3 ± 3.3 , before training, at FU1 and at FU2 respectively ($p < 0.0001$). In EST: 19.1 ± 4.9 , 20.3 ± 5.9 , 18.2 ± 5.5 , before training, at FU1 and at FU2 respectively ($p < 0.008$).

Conclusion Both ET and EST produced a significant improvement in exercise capacity (V'O_{2peak}) at FU1. Unfortunately, both ET and EST worsened at FU2 vs FU1. However FU2 data were better than at baseline.

REFERENCES

- 1 Vogiatzis I. *Eur Respir J*. 2002 Jul;20:12–9
- 2 ACSM's Guidelines for Exercise Testing and Prescription. (2006) 7th Edition

S125 A COMPARISON BETWEEN WEIGHT SUPPORTED AND UNSUPPORTED EXERCISE ON ENERGY EXPENDITURE AND CARDIORESPIRATORY RESPONSE DURING EXERCISE IN OBESE ADULTS WITH TREATED OBSTRUCTIVE SLEEP APNOEA

¹RA Evans, ²TE Dolmage, ²PG Robles, ²D Brooks, ²RS Goldstein. ¹Glenfield Hospital, Leicester, UK; ²West Park Healthcare Centre, Toronto, Canada

10.1136/thoraxjnl-2014-206260.131

Background Weight loss and improving cardiorespiratory fitness are key treatment outcomes for obese individuals with Obstructive Sleep Apnoea (OSA). We investigated the total energy expenditure and cardiorespiratory response to weight supported (cycling) and unsupported (walking) at two different intensities.

Methods Individuals with treated OSA and a BMI >30 kg/m² performed an incremental cardiopulmonary exercise test on a cycle ergometer (ICE) and a treadmill (ITM) with expired gas analysis to determine the peak oxygen uptake (VO_{2pk}). Participants completed two endurance tests on each modality matched at 80% and 60% of the highest VO_{2pk} determined by the incremental tests. The cardiorespiratory responses were measured and total energy expenditure was estimated from the VO₂.

Results 16 participants (8 male) completed all six tests: mean [SD] age 57[13]y and median [IQ range] BMI 33.3[30.8 to 35.3]kg·m⁻². The VO_{2pk} on the ITM vs ICE was 2268[574] vs 1775[430] ml·min⁻¹, respectively. Participants endured treadmill walking at 80% and 60% VO_{2pk} for four and nearly three times as long, respectively, compared to cycling with similar cardiovascular responses. The pattern of energy expenditure during rest, exercise and recovery at matched intensities (Figure 1) was similar between modalities at matched intensities.

Total energy expenditure during treadmill walking was greater than cycling at both high (158[101] versus 29[15]kcal) and moderate (178[100] versus 85[59]kcal) intensities. For a thrice weekly exercise regimen of at least moderate intensity, treadmill exercise would typically result in a total of 388 and 277 kcal/week greater energy expenditure than cycle exercise at 80% and 60% VO_{2pk}, respectively.

Treadmill (triangles) and cycling (circles) at high (A) and moderate (B) intensity exercise. The shaded area under the curve represents total energy expenditure, i.e. work, above rest including recovery. Dashed line — represents VO_{2pk}.

Abstract S125 Figure 1 A comparison of the energy expenditure between weight-unsupported (treadmill) and -supported (cycling) exercise in obese adults with OSA

Conclusion Contrary to current guidelines, walking might be the preferred training modality for achieving the combination of weight loss and increased cardiorespiratory fitness in obese adults with OSA.

S126 DEVELOPING HEALTHY LIFESTYLE INTERVENTIONS FOR OVERWEIGHT PATIENTS WITH OBSTRUCTIVE SLEEP APNOEA (OSA): A SURVEY OF PATIENT ATTITUDES AND CURRENT PRACTICE

I Valero Sanchez, S Wimpress, C Brough, SJ Singh, RA Evans. Glenfield Hospital, Leicester, UK

10.1136/thoraxjnl-2014-206260.132

Background Current BTS/SIGN guidelines suggest the inclusion of behavioural interventions as part of the management for overweight patients with Obstructive Sleep Apnoea Syndrome (OSAS). Healthy lifestyle interventions are widely available in a variety of settings for other chronic diseases.

Our aims were to assess:

1. patients' views and their experience with weight loss and lifestyle changes.
2. Internet and Information Technology (IT) access to investigate if a web-based lifestyle intervention would be feasible.
3. current clinical practice regarding healthy lifestyle advice.

Corrections

AS Delussu, A Laudisio, C Pedone, *et al.* S124 Effects of two adapted physical activity training programmes on pulmonary functionality and exercise capacity in patients affected by chronic obstructive pulmonary disease. *Thorax* 2014;69(Suppl 2):A66. doi:10.1136/thoraxjnl-2014-206260.130

The following funding statement should have been included with the abstract:
Research was granted by the Italian Health Ministry, Project code GR-2009-1596137.

CrossMark

Thorax 2015;70:180. doi:10.1136/thoraxjnl-2014-206260.130corr1