Video Telerehabilitation Versus Centre-based Pulmonary Rehabilitation: A Real-World Propensity Matched Analysis

W. Man[1], H. Littlemore[2], S. Patel[2], J. Harvey[1], K. Ingram[3], T. O. Jenkins[2], C. M. Nolan[4]

[1]Respiratory Medicine, Guy's & St.Thomas' NHS Foundation Trust, Harefield, United Kingdom

[2]Harefield Respiratory Research Group, Guy's and St.Thomas' NHS Foundation Trust, Harefield, United Kingdom

[3]Harefield Pulmonary Rehabilitation Unit, Guy's & St.Thomas' NHS Foundation Trust, Harefield, United Kingdom

[4]Department of Health Sciences, Brunel University London, Uxbridge, United Kingdom.

Rationale Video tele-rehabilitation comprises real-time supervised pulmonary rehabilitation (PR) supported by videoconferencing, and may be an alternative for those unable to attend centre-based PR. Recent trials suggest video telerehabilitation produces similar improvements in exercise capacity and health related quality of life as centre-based PR. However trial participants were provided with video technology and specialist exercise equipment to use in the home, which may not be financially viable in some health systems. Furthermore, the improvements in exercise capacity were lower than expected in both intervention and standard care arms, which might be related to selective trial populations. Aim The aim of our study was to observe the real world responses of patients choosing to undergo a video telerehabilitation programme and compare with a propensity matched control group choosing to undergo PR, in terms of exercise capacity, dyspnoea, health-related quality of life and program completion. Methods Population: Adults with chronic respiratory disease referred for PR. Intervention: Video telerehabilitation programme (Video-PR); two sessions per week for eight weeks supervised by video conferencing; no provision of video-conferencing or exercise equipment except hand and ankle weights; 1 staff to 4 patients ratio. Control: Centre-based pulmonary rehabilitation (Centre-PR); two sessions per week for eight weeks supervised face-to-face; 1 staff: 6 patients ratio. Propensity matched using a logistic regression model to age, sex, MRC, Index of multiple deprivation decile and diagnosis (COPD/non-COPD). Outcomes: Incremental shuttle walk (ISW), Chronic respiratory disease questionnaire (CRQ), self-reported Global rating of change, completion rate. Results Of 502 patients taking up PR, 80 chose a video telerehabilitation programme (16.7%). There was no significant difference in baseline age, MRC, BMI, sex, ISW, CRQ-Dyspnoea or CRQ-Total. There were no statistically significant differences in completion rates (Video-PR: 66% vs. Centre-PR: 58%; p=0.329), or Global rating of change score (Video-PR: 83% “much better” or “better”: vs Centre-PR 92%; p=0.30). Table 1 compares responses to Video-PR and Centre-PR. Mean change in ISW was above the accepted minimum clinically important difference in both Video-PR and CentrePR. Conclusion In a real-world study, a minority of patients referred for PR choose video tele-rehabilitation, but those completing Video-PR have clinically significant improvements in exercise capacity and health related quality of life which are comparable to traditional centre-based PR.

	Response to PR			
	Video-PR	Centre-PR	Between group difference	P value
ISW (metres)	45 (15 to 75)	55 (25 to 80)	-8.5 (-49.4 to 32.4)	0.63
CRQ-Dyspnoea	2.4 (0.8 to 4.0)	4.7 (2.9 to 6.5)	-2.3 (-4.7 to 0.1)	0.06
CRQ-Fatigue	1.9 (0.9 to 3.0)	1.6 (0.3 to 3.0)	0.3 (-1.4 to 2.0)	0.70
CRQ-Emotion	3.3 (1.6 to 5.0)	1.9 (-0.3 to 4.1)	1.3 (-1.4 to 4.1)	0.33
CRQ-Mastery	2.0 (0.7 to 3.3)	1.6 (0.3 to 2.8)	0.4 (-1.4 to 2.2)	0.64
CRQ-Total	9.6 (5.2 to 14.0)	9.8 (4.3 to 15.3)	-0.2 (-7.1 to 6.7)	0.95

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