Effectiveness of a hybrid home-based pulmonary rehabilitation program for patient with COPD

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INTRODUCTION

Pulmonary rehabilitation (PR) is strongly **recommended following hospitalization** for acute exacerbation of Chronic Obstructive Pulmonary Disease (COPD).

However, less than **10% of these individuals have access to conventional PR** program within 6 months post hospitalization.

A French health experiment (Article 51) tested a hybrid home-based PR, combining face-to-face and remotely supervised sessions for improving health status, symptoms and exercise tolerance in people with stable chronic disease

Objective: To evaluate the effectiveness of an 8-week hybrid home-based PR program for patient with COPD

METHOD

Real-life prospective obsevational study:

- Pre- and post-PR comparison within the hybrid group
- Pre- and post-PR comparison within the home-based only group
- Inter-group comparison

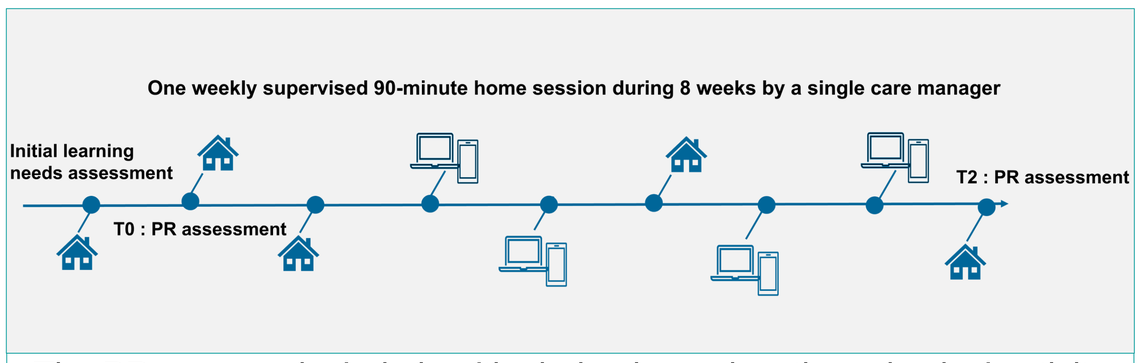
Endpoints / Outcomes:

- **Dyspnea assessments:** mMRC scale
- **Quality of life:**
  - **COPD impact on well-being:** COPD Assessment Test (CAT)
  - **Fatigue:** Fatigue Assesment Scale (FAS)
  - **Anxiety:** Hospital Anxiety Depression scale (HAD)
  - **Depression:** Hospital Anxiety Depression scale (HAD)
  - **Exercise tolerance:** 6-minute stepper test (6MST)

RESULTS

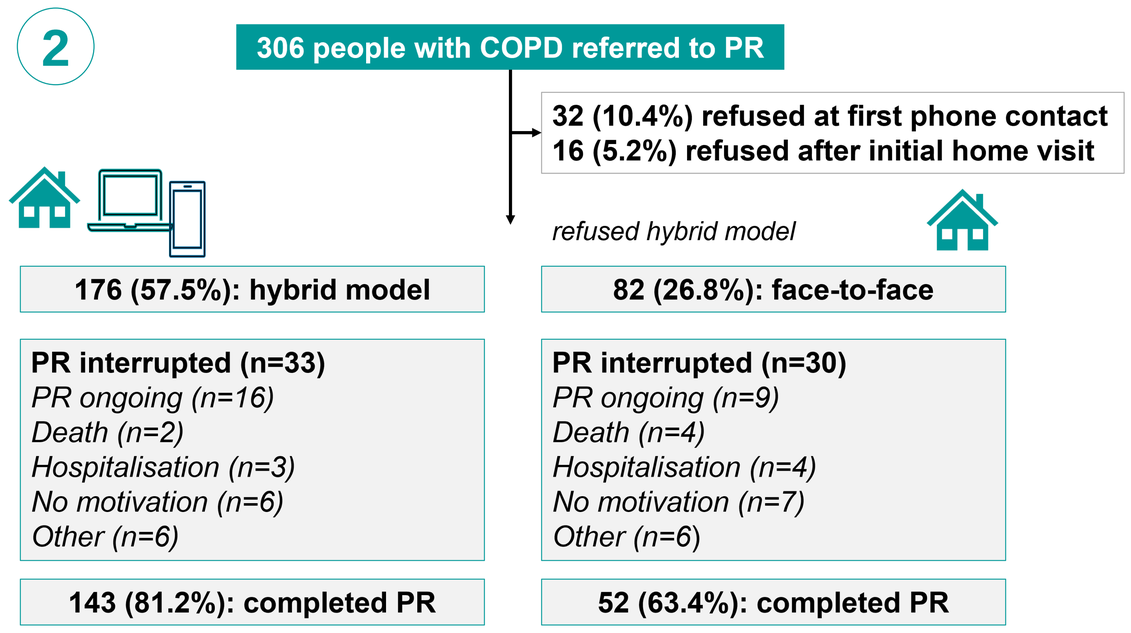
1

Organization of the patient pathway in the PR program



The PR program include healthy behaviors education, physical activity training and motivational psychosocial supports

2



3 ***Baseline characteristics and comparison between hybrid and face-to-face groups***

Baseline characteristics	Hybrid n=176	Face-to-face n=82	p-value
Age, years	64.4 ± 9.7	70.1 ± 8.9	<0.001
Sex, male n (%)	98 (55.7)	58 (70.7)	0.017
BMI, kg/m²	25.5 ± 7.0	24.3 ± 6.1	0.183
FEV1, % of predicted	38.3 ± 19.2	42.5 ± 20.8	0.141
Long-term oxygen therapy, n (%)	97 (55.1)	48 (60.7)	0.541
Non-invasive ventilation, n(%)	43 (24.8)	15 (19.0)	0.306
Comorbidities 3 or more, n (%)	99 (56.2)	56 (68.3)	0.041
Baseline assessments (T0)			
CAT, score (0–40)	22.6 ± 7.4	22.7 ± 7.6	0.925
FAS, score (10–50)	27.3 ± 8.3	28.6 ± 8.3	0.264
Anxiety symptoms, score (0–21)	9.8 ± 4.1	9.3 ± 4.6	0.403
Depressive symptoms, score (0–21)	7.9 ± 4.5	8.1 ± 4.9	0.765
mMRC, score (0–4)	2.99 ± 1.01	3.27 ± 0.84	0.035
6MST, strokes	323 ± 140	282 ± 106	0.080

Data are presented as mean (SD) - Comparison of means: Student's t test

Patients in the hybrid group were **mostly women, younger with fewer comorbidities and better exercise tolerance** than those in the face-to-face group

4 ***Comparison of post-PR effectiveness***

Assessments	Hybrid n=143		Face-to-face n=52		
	T2	ΔT2 - T0	T2	ΔT2 - T0	Group*time effect
CAT	19.2 ± 8.3	-3.3 [-4.4 to -2.2]	20.1 ± 7.1	-2.1 [-3.9 to -0.3]	0.236
FAS	23.7 ± 8.7	-3.4 [-4.5 to -2.3]	26.1 ± 7.6	-1.7 [-3.5 to 0.1]	0.118
HAD Anxiety	8.2 ± 3.9	-1.5 [-2.0 to -1.0]	8.5 ± 4.2	-0.3 [-1.2 to 0.5]	0.023
HAD Depressive	5.7 ± 4.4	-2.2 [-2.7 to -1.6]	6.2 ± 3.7	-1.2 [-2.2 to -0.3]	0.094
mMRC	2.47 ± 1.07	-0.46 [-0.58 to -0.33]	2.98 ± 0.91	-0.31 [-0.53 to -0.10]	0.269
6MST	401 ± 170	64 [46 to 81]	353 ± 115	32 [-6 to 71]	0.144

*Data are presented as mean [95%CI] - Group*time effect : Student's t test on independent sample*

Patients in the hybrid group showed significant improvement in all outcomes (well-being, anxiety and depression, fatigue and exercise tolerance)

Patients in face-to-face group did not improve significantly fatigue, anxiety symptoms and exercise tolerance

More significant reduction in anxiety symptoms in the hybrid group compared with the face-to-face group

CONCLUSIONS

Among the 82 people who refused the hybrid PR but accepted 8 face-to-face PR visits, 15% had no internet access, 18% had a visual or auditory disabilities, 67% declined video. These people were more often male, older, had more comorbidities and dyspnea.

Hybrid PR program offers an effective and accessible alternative to face-to-face PR program for less fragile people with COPD

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