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

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INTRODUCTION

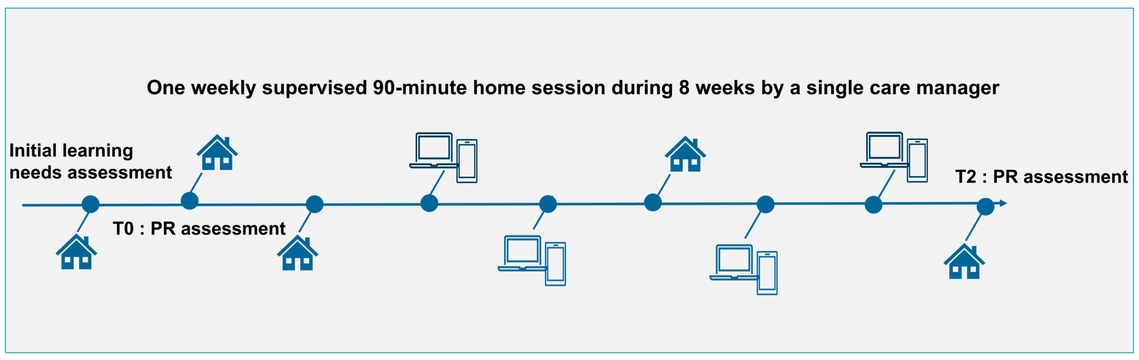
Pulmonary rehabilitation (PR) is strongly **recommended following hospitalization** for acute exacerbation of Chronic Obstructive Pulmonary Disease (COPD).

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

Organization of the patient pathway in the PR program



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

METHOD

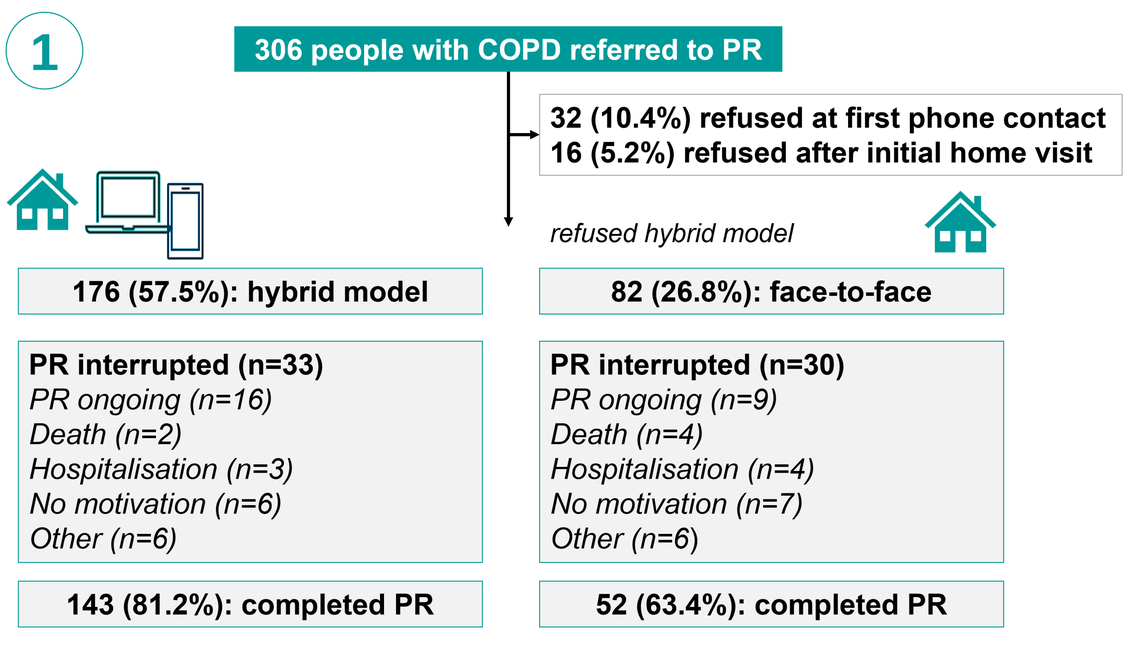
Real-life prospective obsevational study:

- 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



2 ***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

3 ***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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