

Abstract Presentations

3. Sanne van Kampen, The Netherlands

Health outcomes after initiating pulmonary rehabilitation in 4 countries on 3 continents

Dr. Sanne van Kampen
Senior epidemiologist

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National eHealth Living Lab
Leiden University Medical Center
The Netherlands

Background

- Highest burden of chronic respiratory disease (CRD) lies in low- and middle-income countries (LMIC); e.g. 90% of COPD deaths
- Health services in LMICs are ill-equipped to address CRDs and often lack access to medicine
- Pulmonary rehabilitation (PR) is a non-pharmaceutical intervention proven to optimise exercise capacity, quality of life and functional status, and reduce breathlessness and hospitalisation.

1. Soriano, et al. *The Lancet Respiratory Medicine*. 2017; 2. Adeloje, et al. *J Glob Health*. 2015; 3. Buist, et al. *The Lancet*. 2007; 4. Allotey, et al. *BMC Public Health*. 2014 ; 5. van Gemert, *Expert review of respiratory medicine*. 2018; 6. Spruit, et al. *Am J Respir Crit Care Med*. 2013

Fresh Air project



Aim: Assess effectiveness of pulmonary rehabilitation for chronic lung disease in low-resource settings

Countries: Greece, Kyrgyzstan, Vietnam, Uganda

Duration: October 2015 – September 2018

Intervention:

- 6 weeks twice-weekly programme of:
 - Exercises including strength and walking-based endurance
 - Education on lifestyle and self-management/coping techniques
- Provided by local physiotherapists, doctors and nurses at as out-patient care



Methods

- Patient inclusion criteria: confirmed diagnosis of a CRD and MRC dyspnoea scale ≥ 2
- Outcomes: incremental shuttle walking test, clinical COPD questionnaire score, MRC dyspnoea scale, Karnofsky score, self-reported chest pain, cough and haemoptysis
- Recorded at the beginning, immediately at the end and 6 weeks after the end of the PR programme



Programme participants (n=116)

	Total	Uganda	Vietnam	Kyrgyzstan	Greece
	<i>n (%)</i>	<i>n (%)</i>	<i>n (%)</i>	<i>n (%)</i>	<i>n (%)</i>
Total participants	116 (100)	44 (100)	24 (100)	17 (100)	31 (100)
Female	59 (51)	27 (61)	10 (42)	7 (41)	15 (48)
Current smokers	12 (10)	0 (0)	2 (8)	5 (29)	5 (16)
COPD	39 (34)	5 (11)	10 (42)	14 (82)	10 (32)
PTBLD	36 (31)	34 (77)	2 (8)	0 (0)	0 (0)
Sever asthma	23 (20)	4 (9)	8 (33)	2 (12)	9 (29)
Other diagnosis	18 (16)	1 (2)	4 (17)	1 (6)	12 (39)
	<i>median (IQR)</i>	<i>median (IQR)</i>	<i>median (IQR)</i>	<i>median (IQR)</i>	<i>median (IQR)</i>
Age	60 (49, 69)	49 (39, 58)	61 (59, 69)	58 (51, 62)	71 (65, 76)
FEV1% pre-BD	58 (42, 77)	54 (41, 75)	43.0 (35, 56)	49 (26, 68)	81 (59, 98)

Conventional PR outcomes (n=112)

	Before PR	After PR	Difference	p-value	CMID
	<i>Mean (95%CI)</i>			<i>Paired t-test</i>	
ISWT (metres)	264 (248, 281)	360 (338, 381)	95 (80, 110)	<0.0001	47.5
Karnofsky score	77 (75, 78)	86 (85, 88)	10 (9, 11)	<0.0001	
CCQ total score	19 (18, 20)	10 (9.3, 11)	-8.7 (-10, -7.3)	<0.0001	-4.0
MRC dyspnoea scale	2.8 (2.7, 3.0)	1.9 (1.8, 2.0)	-0.9 (-1.1, -0.7)	<0.0001	-1.0
	<i>Proportion % (95% CI)</i>			<i>Paired X2 test</i>	
Chest pain	60 (51, 69)	14 (8, 21)	-46 (-34, -57)	<0.0001	
Haemoptysis	6 (2, 11)	2 (-1, 4)	-4 (-10, 1)	0.0445	
Cough (n=88)	56 (45, 66)	44 (34, 55)	-11 (-26, 3.3)	0.0658	

Conclusions

- Implementation of PR in low-resource settings was feasible and acceptable
- Improved exercise capacity, quality of life and reduction of breathlessness
- 1st study to report on the effects of PR on chest pain, cough & haemoptysis:
 - Chest pains and cough were very prevalent in all CRD patients
 - Major improvements in chest pain and haemoptysis for all CRD patients
 - Reduced cough was reported for COPD patients, but less so for other CRD patients.

What is the underlying biological mechanisms for a reduction in chest pain, cough & haemoptysis?



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