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PROLUCA

PROLUCA (Perioperative Rehabilitation in Operation for LUng CAncer) – A feasibility study

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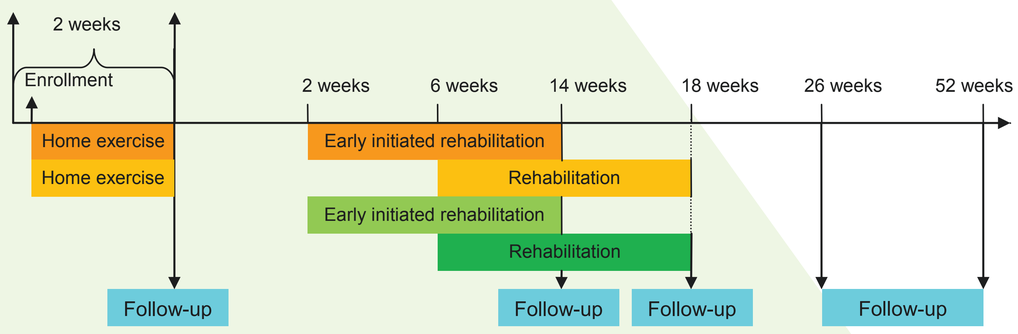
OBJECTIVE

To investigate, in a non-hospital setting, the safety and feasibility of a preoperative and early postoperative rehabilitation program, with focus on exercise, in patients undergoing surgery for lung cancer.

METHODS

A feasibility study where 40 patients (23 female) with histological evidence of non-small cell lung cancer (NSCLC) at disease stage I-IIIa, referred for surgical resection at Department of Cardiothoracic surgery RT, Rigshospitalet, were randomized to one of four groups seen in figure 1. Baseline characteristics are presented in table 1. The study is conducted between May 2012 and April 2014.

Figure 1. PROLUCA study timeline (three intervention groups and one control group)



INTERVENTION

Preoperative rehabilitation program: An individually designed, 30 minutes daily, home-based exercise program.
Postoperative rehabilitation program: A supervised group exercise program comprising resistance and cardiovascular training two hours weekly for 12 weeks (exercise intensity at 60-90% of HRmax) combined with individual counseling.

OUTCOME

Primary: VO_2peak
Secondary: 6 MWD, 1RM, patient-reported outcomes and perioperative complications

RESULTS

The study flow is presented in figure 2. Forty patients of 124 screened eligible (32%) were included and randomized.

The preoperative exercise was completed by 11/18=61% of the patients randomized to this intervention. The combination of medical procedures and lack of time prior to operation did not leave the chance of instructing 6 of the patients in the home-based exercise program. Figure 3 shows the amount of self-reported preoperative exercise.

The postoperative exercise was completed by 21/40=53 % of the patients. No adverse events occurred and the early postoperative rehabilitation is therefore, in this setting, safe.

Data from the feasibility study are under further investigation.

Figure 2. Study flow PROLUCA feasibility

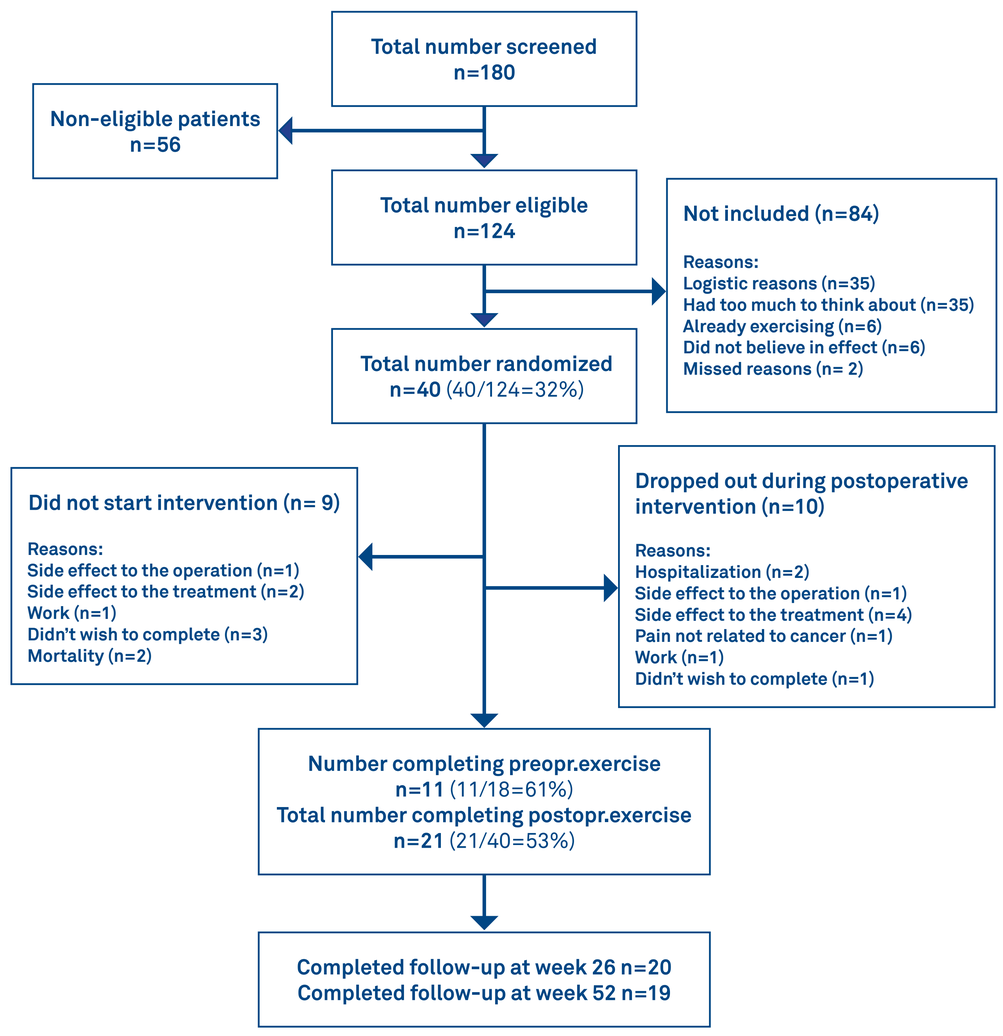
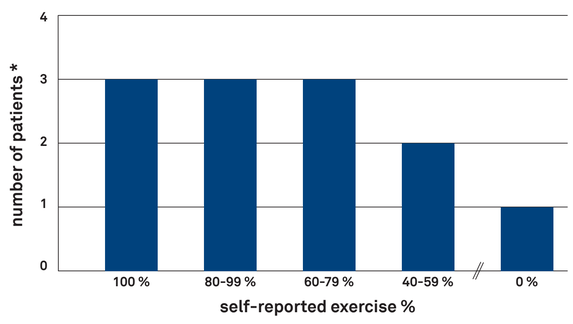


Table 1. Baseline characteristics of the participants (n=40)

Variable	n	Mean (SD)	Range
Age (yr)	40	69 (9)	37-87
BMI (kg/m²)	40	25(5)	18-40
VO_2peak (mlO_2/min)	39	1398(385)	650-2493
Fitness (mlO_2/kg/min)	40	19.5(5)	9-33
6 MWD (m)	39	477(81)	252-682
1 RM leg (kg)	40	107(39)	45-196
1 RM chest (kg)	37	34(13)	7-66
FEV_1 (l in first second)	39	2.4(0.6)	1.2-3.5
FEV_1/FVC (%)	39	68(9)	40-80

Figure 3. Preoperative home-based exercise



* 6/18 patients were due to lack of time not instructed prior to the operation

CONCLUSION

This is the first study initiating exercise 2 weeks postoperatively to patients with NSCLC, and the feasibility study shows, that the exercise program is safe.

Due to a fast-track surgical patient pathway the amount of exercise performed prior to operation was inconsistent. Therefore the preoperative intervention was in this setting not feasible.

The recruitment percentage was lower than expected. To secure patient recruitment in the following PROLUCA RCT study (under conduction), the design of the study is modified from four to two intervention groups, and preoperative home-based exercise is omitted.

Acknowledgements
The study is supported by grants from The Center for Integrated Rehabilitation of Cancer patients (CIRE), a center established and supported by The Danish Cancer Society and The Novo Nordisk Foundation and the study is supported by the Copenhagen University Hospital, CopenRehab University of Copenhagen, and is secured by funding from The Municipality of Copenhagen.

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