The Effects of Physical Therapy on Patients with Advanced Lung Cancer
Cardiopulmonary Physical Therapy
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PICO

- Do patients with advanced lung cancer who participate in an exercise program in addition to typical cancer care show greater improvement in their physical fitness, functional level, and quality of life than patients receiving only typical cancer care?

PICO

- Advanced stage: non-small cell (stages IIIb-IV) and small cell lung cancer
- Typical care for advanced stage lung cancer: surgical intervention, chemotherapy, and radiation therapy

Relevance

- Lung cancer is 2nd most commonly diagnosed type of cancer
- Symptoms related to cancer treatment – Dyspnea, cough, pain, decreased appetite, decreased functional capacity, fatigue
- Physical Therapy treatment could improve function and quality of life

Article 1

- Prospective, Randomized Controlled Trial (RCT)
- Hypothesis: patients with advanced stage lung cancer who undergo a physical and psycho-social program will demonstrate an increase in physical capacity and functional level
- Outcomes:
  - Aerobic capacity: VO₂ peak
  - Functional capacity: 1RM, 6 Minute Walk Test (6MWT)
  - Lung capacity: Forced Expiratory Volume in 1 sec (FEV₁)
  - Quality of life (QOL): Patient Reported Outcomes

Article 2

- RCT
- Hypothesis: Strength and mobility training provided early after lung resection will effect quality of life, exercise tolerance, and muscle strength
- Outcomes:
  - Exercise tolerance: 6 MWT
  - Muscle strength: Quadriceps strength by magnetic stimulation
  - QOL: EORTC QLQ-CL13 (version 2.0) questionnaire
Article 2: Results

- No increase in 6 MWT times from baseline to 12 weeks post-op
- Significant increase in quadriceps strength form baseline to 5 days post-op compared to control group
  - No significant difference between groups from baseline to 12 weeks post-op
- No significant difference for any measure of QOL, either within subjects or between groups

Refutes original hypothesis

Article 3

- RCT
- Hypothesis: Intervention of supervised group-based PT will improve health related QOL and physical capacity compared to unsupervised individual training
- Outcomes:
  - Health related QOL: 36-item Short Form Health Survey Version 2 (SF-36)
  - Functional capacity: 6 MWT
  - Lung capacity: FEV1/FVC

Article 3: Results

- Short term improvement in 6 MWT and FEV1/FVC in both groups at 4 months, but not statistically significant
- Significant effect found in SF-36, specifically related to pain, at 4 months
- No differences found in long term, 12 months

Refutes original hypothesis

Article 4

- Quasi-Experimental
- Hypothesis: Exercise intervention will increase functional capacity, psycho-social status, endurance, and muscle strength in individuals with lung cancer
- Outcomes:
  - Feasibility
  - Functional Capacity
    - Endurance: 6MWT
    - Strength: handheld dynamometry
  - Psychosocial status
    - QOL: Functional Assessment of Cancer Therapy (FACT-L)
    - Depression: Patient Health Questionnaire (PHQ-9)
    - Fatigue: Multidimensional Fatigue Inventory (MFI)

Article 4: Results

- Statistically significant improvements were found in functional capacity, muscular strength, and fatigue
- No statistically significant improvements were found in QOL or depression

Supports and Refutes the original hypothesis

Conclusion

- Our findings demonstrate moderately conclusive evidence which refutes the original hypothesis that Physical Therapy intervention improves physical fitness and functional level
- Our findings also demonstrate conclusive evidence that Physical Therapy intervention does not improve long term quality of life in patients with advanced lung cancer
References


