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Title: Feasibility of inspiratory muscle training in connexion with lung cancer surgery

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Body: The aim of this pilot study was to determine the feasibility and preliminary effectiveness of inspiratory muscle training (IMT) before and immediately after lung cancer surgery. **Methods:** Six consecutive patients performed IMT with the Powerbreathe device (30 % of maximum inspiratory pressure, MIP, 5 days prior to surgery, 15% of MIP for 5 days after surgery), with 2x30 breaths twice daily. IMT was unsupervised before surgery. Data on maximum inspiratory- and expiratory pressure (MIP/MEP), spirometry and walking distance (6MWT) was collected 6 days prior to surgery and on days 5 and 14 postoperatively. Participants rated their experienced exertion level and pain level on a training diary; training sessions were stored in the IMT device. **Results:** The mean age was 63 years (range: 56-79) and 5 patients were women; thoracotomy was performed in 5 patients, with 2 of these having a lobectomy; the length of hospital stay was 8 days (range: 4-20). Changes from baseline to day 5 and 14 were respectively: MIP 81.5/ 76.4/ 85.4 cm H₂O; MEP 104/ 85.2/88 cm H₂O; FVC 2.92/ 2.42/2.44 l; FEV₁ 2.1/1.58/1.57 l; 6MWT 474, 382/413 m. The postoperative pain level under IMT was 2 (range 0-6); exertion 2.3 (range 1-3). The compliance to the training sessions before and after the surgery was 90% and 100%, respectively. No adverse events occurred during IMT or assessments. **Conclusion:** IMT before and immediately following lung cancer surgery was shown to be feasible, safe, well tolerated and appreciated by participants. We found a minor improvement of 4.7% in MIP, while detriments were detected for all other outcomes, from baseline to 14 days after surgery.