G. Magrone, D. Formica, M. Milazzo, E. Gallotta, L. Zollo, E. Guglielmelli, S. Valente, P. Granone, S. Sterzi, S. Syed Abdul Rashid, S.T. Chai, M. Hussain. OEP-based evaluation of respiratory rehabilitation in elderly patients after lung resection for NSCLC. Gerontechnology 2008; 7(2):159. We report on the effect of respiratory rehabilitation (RR) on respiratory functional parameters and quality of life in a group of elderly patients subjected to lung resection for Non-Small Cell Lung Cancer (NSCLC). Respiratory rehabilitation (RR) is effective[1], and a crucial component of the overall treating strategy in high risk surgical lung patients[2]. RR was part of the preoperative phase in candidates meeting the multicenter NETT trial critera[3]. Few data exist on the effectiveness of inpatient RR (i-RR) programs before or lung resection (LR) for NSCLC[4,5]. Thoracotomy and parenchymal resection strongly affects pulmonary function and quality of life (QoL)[6,7]. Our previous studies[8] prompted the design of a prospective randomised controlled trial to confirm earlier findings along with costs and QoL evaluation. The OEP (Opto-Electronic Pletismography) used in this study to analyze respiratory kinematics computed from geometric models in comparison with spirometric data[9] allows non-invasively measure breathing patterns of patients in rest, exercise, or phonation[10-12]. OEP accurately measures the shape of the chest wall during breathing by modeling the thoracoabdominal surface with markers attached to the rib cage and abdomen, with measurements of the pulmonary rib cage (RCp), abdominal rib cage (RCa) and the abdomen (AB). The boundary between RCp and RCa is assumed to be at the level of xiphoid, and the boundary between RCa and the abdominal compartment (AB) is along the lower costal margin anteriorly and at the level of the lowest point of the lower costal margin posteriorly. The total chest wall volume (VCW) is calculated as the sum of VRCp, VRCa and VAB. The contribution of each compartment to the breathing kinematics is assessed. The OEP system also has the option to compare right and left chest wall expansion, giving information on asymmetries of respiratory actions, showing how patients compensate with the unaffected compartment the deficits caused by the monolateral LR. A total of ten elderly patients with NSCLC and treated by LR surgery will be enrolled by the end of a 3-month study. Three different evaluation sessions are foreseen: shortly before surgery, shortly after surgery and after 3 weeks of rehabilitation. End-expiratory chest wall volume (EEVCW), end-inspiratory chest wall volume (EIVCW) and inspiratory reserve chest wall volume (IRVCW) are measured.

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