B-004

PROPHYLACTIC CONTINUOUS POSITIVE AIRWAY PRESSURE AFTER PULMONARY LOBECTOMY FOR LUNG CANCER: A RANDOMIZED CONTROLLED TRIAL

Mario Nosotti[1], E. Privitera[1], M. Lazzeri[2], S. Mariani[1], L. Rosso[1], D. Tosi[1], A. Palleschi[1], P. Mendogni[1], I. Righi[1], R. Carrinola[1], M. Montoli[1], M. Torre[2], M. Reda[2], L. Santambrogio[1]
[1]*Thoracic Surgery and Lung Transplantation Unit, IRCCS Fondazione Ca' Granda Ospedale Maggiore Policlinico, Milan, Italy*
[2]*Thoracic Surgery Unit, Grande Ospedale Metropolitano Niguarda, Milan, Italy*

Objectives:
The utility of continuous positive airway pressure (cPAP) after pulmonary resection is debated. The aim of this trial was to evaluate the clinical outcomes in patients treated with prophylactic cPAP after pulmonary lobectomy for lung cancer. The primary end point was the aggregate rate of cardio-pulmonary adverse effects; secondary end-points were cardio-respiratory functional parameters, length of hospital stay and 30-day mortality.

Methods:
Design: prospective randomized, controlled, trial approved by the local ethical committee and registered on-line. Setting: one university hospital and one tertiary hospital. Patients: adults with stage I non-small cell lung cancer scheduled for pulmonary lobectomy. Intervention: continuous positive airway pressure, tailored on body mass index, administered six hours a day during the first three postoperative days. Study arms: study group received intervention and standard physiotherapy (early mobilization and assisted cough); the control group received standard physiotherapy. Measurements: number of postoperative atelectasis, pneumonia, prolonged air leak (> seven days) and cardiac complications were summarized in the aggregate rate; cardio-respiratory and functional parameters were also tested during the first five postoperative days.

Results:
Randomization allocated 81 patients to the study group and 82 to the control group. The two groups resulted homogeneous in demographic and physiological characteristics except higher rate of male (p=0.043) and lower FEV1% (p=0.044) in the control group. Lobectomy types, approaches (open vs. VATS), operative time and allocation (university vs. tertiary hospital) were homogeneous between the two arms. The mean effective application of the intervention was 11.5 (±3.9) hours. The study group had lower aggregate complication rate (p=0.005); lower pulmonary complication rate (p=0.04) and lower hospital stay (p=0.031). None of the cardio-respiratory and functional parameters resulted significantly different between groups at any postoperative time- point (table 1); there was no operative mortality in both groups.

Table 1: Selection of clinical variables	Study group	Control group	P
Patients	81	82	-
Age	67 (63 – 69)	66 (64 -68)	n.s.
Gender, male	54 (55.6%)	59 (72%)	0.043
BMI	25.84 (±3.94)	25.68 (±3.92)	n.s.
Current smoker	38 (48.1%)	37 (45.7%)	n.s.
Preop. pO_2	83.5 (79 – 89)	87 (83 – 88)	n.s.
Preop. FEV1 (%)	96.8 (±18.9)	90.8 (±18.6)	0.044
Preop. 6MWT (m)	465 (450 – 495)	480 (457 – 498)	n.s.
Surgical approach, thoracotomy	50 (61.7%)	53 (64.6%)	n.s.
4th postop. day pO2	74 (70- 78)	74 (68 – 77)	n.s.
4th postop. day FEV1 (%)	54 (48 - 57)	53 (49 – 57)	n.s.
5th postop day 6MWT (m)	408 (±81)	412 (±89)	n.s.
Length of hospital stay (days)	6 (5 -6)	7 (6 – 7)	0.031
Pulmonary complications (atelectasis, pneumonia, prolonged air leak)	16 (19.8%)	29 (35.4%)	0.04
Aggregate cardio-pulmonary complications	18 (22.2%)	36 (43.95%)	0.005

Conclusion:
Prophylactic postoperative cPAP significantly reduced cardio-respiratory complications after pulmonary lobectomy.

Disclosure: No significant relationships.
Keywords: pulmonary lobectomy, continuous positive airway pressure, lung cancer, postoperative complications