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Title: Risk factors for prolonged postoperative air leak-a retrospective analysis of 853 partial lung resections for non-small cell lung cancer

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Body: Introduction The air leak after partial pulmonary resections leads to increased morbidity, hospital stay and costs. Aims and objectives The aim of the study is by a retrospective analysis to evaluate the risk factors for prolonged air leak after pulmonary resections for non-small cell lung carcinoma. Methods A total of 853 patients with non-small cell lung cancer were operated on. Preoperative variables such as age, FEV1, FVC, Tiffneau index, ppo FEV1, PaO₂, partial PaCO₂, hemoglobin and serum albumin levels, diabetes status, tobacco use (packet years), use of cortisol, presence and stage of COPD were evaluated by logistic regression analysis. Some intraoperative variables such as side, localization, type and volume of resection, standard or extended resections, the presence of pleural adhesions and the length of resected interlobar fissure were assessed by the same analysis, as well. Results Prolonged air leak was wound in 14.3 % of the cases. The univariate analysis showed that FEV1, FEO1/FVC, ppo FEV1, COPD stage, tobacco and corticosteroids uses, upper lobectomies, pleural adhesions, distance of sutured fissure and extended resection cause postoperative air leak for more than 7 days. In multivariate analysis only low levels of FEO1 (p=0,004), FEO1/FVC (p=0,02), ppo FEO1 (p=0,001), COPD stage (p=0,01), pleural adhesions (p=0,0001) and long interlobar fissure resection (p=0,006) were the main risk factors for this complication. Conclusion The risk factors of prolonged air leak after pulmonary resections should be carefully evaluated in every patient in order to reduce the percentage of this complication.