

Lung perfusion SPECT in predicting postoperative pulmonary function in lung cancer

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The aim of this prospective study is to evaluate the availability of preoperative perfusion SPECT in predicting postoperative pulmonary function following resection. Twenty-three patients with lung cancer who were candidates for lobectomy were investigated preoperatively with spirometry, x-ray computed tomography and ^{99m}Tc macroaggregated albumin SPECT. Their postoperative pulmonary functions were predicted with these examinations. The forced vital capacity and the forced expiratory volume in one second were selected as parameters for overall pulmonary function. The postoperative pulmonary function was predicted by the following formula: Predicted postoperative value = observed preoperative value \times percent perfusion of the lung not to be resected. The patients were reinvestigated with spirometry at 3 months and 6 months after lobectomy, and the values obtained were statistically compared with the predicted values. Close relationships were found between predicted and observed forced vital capacity ($r=0.87$, $p<0.001$), and predicted and observed forced expiratory volume in one second ($r=0.90$, $p<0.001$). The accurate prediction of pulmonary function after lobectomy could be achieved by means of lung perfusion SPECT.

Key words: lung perfusion, SPECT, prediction, pulmonary function, lung cancer