



# Sixth International Joint Meeting on **THORACIC SURGERY**

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11<sup>th</sup> International Meeting on General Thoracic Surgery



Hospital  
Universitari  
Sagrat Cor

10<sup>th</sup> International Workshop on Surgical Exploration of the  
Mediastinum and Systematic Nodal Dissection



5<sup>th</sup> Meeting of the Thoracic Oncology, Thoracic  
Surgery, Techniques & Transplant, Respiratory Nursing  
and Respiratory Physiotherapy Areas of the Spanish  
Society of Pneumology and Thoracic Surgery (SEPAR)



3<sup>rd</sup> Joint Meeting of the Spanish Society of  
Thoracic Surgery (SECT)



30<sup>th</sup> Congress of the 'Asociación Iberoamericana  
de Cirugía Torácica' AIACT



10<sup>th</sup> International Workshop on Surgical Exploration of the  
Mediastinum and Systematic Nodal Dissection



## **QUANTITATIVE CHEST CT IMAGING FOR FUNCTIONAL EVALUATION OF THE PATIENT CANDIDATE FOR ANATOMICAL PULMONARY RESECTION**

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Preoperative functional evaluation before pulmonary lobectomy is still based on pulmonary function tests (PFTs), and segment counting is considered the standard approach to predict postoperative function (PF). Our aim is to correlate this approach with a quantitative functional imaging technique. Candidates for early-stage lung cancer surgery from August to December 2023 were included. Exclusion criteria were benign diseases, advanced lung cancers and subjects who underwent pneumonectomy. Our analysis evaluated FEV1, FVC and DLCO performed before and six months after surgery. Pre- and postoperative chest CT scans were analysed by bioengineers of Politecnico of Milan. The radiological images were processed to obtain anatomical segmentation, analysis of weights and functional volumes of the lung (between -910HU and -500HU). The analysis focused on the correlation of the measured postoperative FEV1 and FVC values with predicted values calculated with segment counting and with the imaging approach. We enrolled 22 patients who underwent pulmonary lobectomy and matched the inclusion criteria. Our results did not show a statistically significant difference using CT imaging compared to the anatomical formula in calculating PF ( $p = 0.775$ ). However, CT results superior in predicting postoperative FVC values ( $p < 0,001$ ). Our study confirms the validity of quantitative CT segmentation to predict PF. The superiority in predicting postoperative FVC values using CT segmentation is a useful predictor of postoperative risk infection and ICU stays. Furthermore, we will continue our study to investigate if there is a difference between the two approaches in case of segmentectomy or subjects with severe functional deficit.