



Original article

Is Age a Predisposing Factor of Postoperative Complications After Lung Resection for Primary Pulmonary Neoplasms?^{☆,☆☆}



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A B S T R A C T

Introduction: Age has been classically considered as a determining factor for the development of postoperative complications related to lung resection for bronchogenic carcinoma. The Postoperative Complications Study Group of the Spanish Society of Thoracic Surgery has promoted a registry to analyze this factor.

Methods: A total of 3307 patients who underwent any type of surgical resection for bronchogenic carcinoma have been systematically and prospectively recorded in any of the 24 units that are part of the group. Several variables related to comorbidity and age, as well as postoperative complications, were analyzed.

Results: The mean age of patients was 65.44. Men were significantly more common than female. The most frequent complication was prolonged air leak, which was observed in more than one third of patients. In a univariate analysis, air leak presence and postsurgical atelectasis showed statistical association with patient age, when stratified in age groups. In a multivariate analysis, age was recognized as an independent prognostic factor in relation to air leak onset. However, this could not be confirmed for postoperative atelectasis.

Conclusion: Age is a predisposing factor for the development of postoperative complications after lung resection. Other associated factors also influence the occurrence of these complications.

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¿Es la edad un factor predisponente de complicaciones postoperatorias en las resecciones pulmonares por neoplasias pulmonares primarias?

RESUMEN

Palabras clave:

Carcinoma broncogénico
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Introducción: La edad del paciente ha sido clásicamente interpretada como un factor condicionante de la aparición de complicaciones postoperatorias en cirugía de resección pulmonar por carcinoma broncogénico. El Grupo de Estudio de Complicaciones Postoperatorias de la Sociedad Española de Cirugía Torácica promovió un registro que permitiera analizar este hecho.

Métodos: Se recogieron de forma consecutiva, sistemática y prospectiva los datos de un total de 3.307 pacientes tratados con algún tipo de resección quirúrgica por carcinoma broncogénico en las 24 unidades que forman parte del grupo. Fueron analizadas variables relativas a la comorbilidad y la edad del paciente, así como a las complicaciones postoperatorias acaecidas.

Resultados: La edad media de los pacientes intervenidos fue de 65,44 años. La población masculina en la serie era significativamente mayor que la femenina. La complicación más frecuente fue la fuga aérea prolongada, que ocurrió en más de un tercio de los pacientes. En el estudio univariante, la aparición de fugas aéreas y de atelectasias posquirúrgicas mostraron asociación estadística con la edad de los enfermos, analizada por grupos etarios. En el análisis multivariante, la edad se presentó como un factor pronóstico independiente en relación con la aparición de fugas aéreas posquirúrgicas, no así en cuanto a las atelectasias posresección.

Conclusión: La edad es un factor predisponente para el desarrollo de complicaciones postoperatorias tras resección pulmonar en nuestro medio, si bien otros factores asociados condicionan también la aparición de estas complicaciones.

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Introduction

Although bronchogenic carcinoma surgery (and for that matter, lung resections in general) has experienced remarkable development in recent years, it has been the progression of video-assisted surgery that has provided probably the greatest revolution in the field of thoracic surgery since the end of the last century.¹ This, along with other technical advances, has meant that we are now able to surgically treat patients who previously would have been ruled out for surgery because of their comorbidities. For instance, age was classically interpreted as a determining factor in the expected morbidity after lung resection and, therefore, in the selection of patients who were candidates for lung surgery. Whereas in the early 1990s it was common practice to dismiss surgical treatment in patients over the age of 70,^{2,3} today patients between the sixth and eighth decades of life represent the vast majority of the population considered candidate for surgery at our hospitals.⁴

Given this situation, the Postoperative Complications Group of the Spanish Society of Thoracic Surgery (*Group de Complicaciones Postoperatorias de la Sociedad Española de Cirugía Torácica*, GCP-SECT) has promoted a study to analyze the current impact of age as a predisposing factor for postoperative complications in the context of lung cancer resections.

Methods

From the period of time between June 1, 2012 and November 30, 2014, the GCP-SECT systematically and prospectively

collected data from a total of 3307 patients treated with some type of pulmonary resection due to bronchogenic carcinoma. In this multicenter project, a total of 24 thoracic surgery departments participated, each belonging to a different hospital throughout Spain. The participating hospitals are listed in [Addendum A](#). Data were obtained for the following variables: related with age, sex, patient medical history, surgery conducted and postoperative complications ([Table 1](#)). These data were compiled consecutively and anonymously in a computerized database with online internet access, and the information was stored in a Excel file stored by the GCP-SECT. All the participating hospitals have followed the guidelines of the Patient Personal Data Protection Law. These data were stratified according to 3 age groups: 70 years of age or younger (group A), between 70 and 80 years of age (group B) and 80 years of age or older (group C).

The inclusion criteria of this registry were: patients with a histological diagnosis of bronchogenic carcinoma who had undergone surgery with curative intent at the Thoracic Surgery Departments within Spain, including atypical lung resection, segmentectomy, lobectomy, bilobectomy or pneumonectomy. In order to provide the study with homogeneity, exclusion criteria were: exploratory video-assisted thoracoscopies or thoracotomies, life-saving emergency surgeries and cases with synchronous tumors.

The statistical study was carried out with SPSS 21.0 for Windows. The Student's t test was used for the comparison of numerical variables with other dichotomic categories. The comparison of numerical variables with other categorical variables of more than 2 categories was performed with the single-factor ANOVA test. The comparison of qualitative

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