

Lung Volume Reduction Surgery for Native Lung Hyperinflation Following Single-Lung Transplantation for Emphysema- Which Patient?

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Abstract

This study aims to assess the eligibility of patients to undergo non-anatomical multiple wedge resection surgery following complications after single lung transplantation to treat emphysema. A number of patients were evaluated using a range of radiological, laboratory, and pulmonary function tests to gauge operative viability. Following assessment, lung volume reduction surgery was carried out successfully indicating its efficacy in treating native lung hyperinflation

Introduction

Double-lung transplantation is a well established treatment method for patients with advanced emphysema and COPD. However, due to unavailability of donors, single-lung transplant is opted for instead. This study evaluates which patients may be eligible for surgical correction of complications following single-lung transplantation.

Method

A retrospective study was done of eight patients that have undergone single lung volume reduction surgery for native lung hyperinflation as a treatment option for COPD. The patients were of equal ratio in gender with the age group ranging from 50 to 69 years. The pre-operative tests indicated included increasing shortness of breath and deterioration in pulmonary function tests. Additional tests also included high-resolution computed tomography (HRCT), V/Q scan for lung function and a detailed history of all eight patients were noted.

Result

There was a post operative success with a thirty day survival being 100% for the patient group under study. It was noted that the patients had different series of short term postoperative complications. The complications included the need of non-invasive respiratory support for two days following surgery, respiratory infections, atrial fibrillation and bleeding. One of the eight patients died due to respiratory failure secondary to pneumonia although the follow up pulmonary function tests showed an improvement in FEV1 in all patients. Alongside, the follow up of the surgery post 6 months demonstrated improved results in the remaining seven patients with improvement in clinical symptoms, exercise tolerance and quality of life.

Conclusion

Single lung transplantation, which was previously considered a high risk treatment, can now be seen in a different light with this and similar studies. Although proven that double lung transplant results in better outcomes in severe cases of COPD comparatively, the unavailability of donors is what leads to the opting of single lung transplantation. But this risk can be significantly reduced with the careful selection of patients and adequate risk assessment.

Keyword

Pre-operative assessment, Single lung transplantation, Complications