

| PublisherInfo | | |
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| PublisherName | : | BioMed Central |
| PublisherLocation | : | London |
| PublisherImprintName | : | BioMed Central |

More evidence for the short-term beneficial effects of lung volume reduction surgery

| ArticleInfo | | |
|-----------------------|---|--|
| ArticleID | : | 4222 |
| ArticleDOI | : | 10.1186/ccf-2000-6379 |
| ArticleCitationID | : | 6379 |
| ArticleSequenceNumber | : | 81 |
| ArticleCategory | : | Paper Report |
| ArticleFirstPage | : | 1 |
| ArticleLastPage | : | 4 |
| ArticleHistory | : | RegistrationDate : 2000-9-8 OnlineDate : 2000-9-8 |
| ArticleCopyright | : | Current Science Ltd2000 |
| ArticleGrants | : | |
| ArticleContext | : | 1305422 |

Keywords

Chronic obstructive pulmonary disease, clinical trials, lung volume reduction surgery

Comments

Most studies describing improvement in chronic obstructive pulmonary disease (COPD) patients after lung volume reduction surgery utilize carefully selected patients and compare the postoperative to preoperative values. Several groups, including the American Thoracic Society, have called for randomized trials with a control group assigned to receive the same intensive rehabilitation and medical management as that given to the patients who undergo operative intervention. This manuscript describes 48 patients who were randomly assigned to receive either operative intervention or continued medical treatment. There was no reduction in mortality in this small trial (three deaths in the surgical group and two in the medically treated group). The lack of reduction in mortality is not surprising given the small number of patients and the relatively brief period of follow up. There was an improvement in most parameters examined at 3, 6 and 12 months, including quality of life. However, the improvement was more modest the longer the time from the operation. Forced expiratory volume in 1 s (FEV₁) was not improved at 6 or 12 months ($P = 0.09$ and 0.45 respectively), and shuttle walking distance did not improve at any time ($P > 0.05$). These results are consistent with other investigations. The study only briefly addresses several issues, including patient selection and operative technique, but overall lends credence to the concept of an initial improvement (< 1 year) in severe COPD after lung volume reduction surgery.

Introduction

Although many patients with severe emphysema have undergone lung-volume-reduction surgery, the trials have mostly been uncontrolled with comparisons to the baseline characteristics of the patient and not to other, medically treated, patients. Although the technique appears promising, the benefits are uncertain.

Methods

- . A randomized, controlled trial of the surgical bilateral lung resection in patients with emphysema
- . Patients with isolated bullae were excluded because such patients are known to improve after bullectomy
- . Potentially eligible patients were given intensive medical treatment and completed a smoking-cessation program and a 6-week outpatient rehabilitation program before random assignment to surgery or continued medical treatment
- . After 15 patients had been randomized, the entry criteria were modified to exclude patients with a carbon monoxide gas-transfer value less than 30% of the predicted value, or a shuttle-walking distance of less than 150 m, because of the deaths of five such patients (three treated surgically and two treated medically)

Results

Of the 174 subjects who were initially assessed, 24 were randomly assigned to continued medical treatment and 24 to surgery. At baseline in both groups, the median FEV₁ was 0.75 l, and the median shuttle-walking distance was 215 m. Five patients in the surgical group (21%) and three patients in the medical group (12%) died ($P = 0.43$). After 6 months, the median FEV₁ had increased by 70 ml in the surgical group and decreased by 80 ml in the medical group ($P = 0.02$). The median shuttle-walking distance increased by 50 m in the surgical group and decreased by 20 m in the medical group ($P = 0.02$). There were similar changes in quality-of-life. Similar changes at 12 months of follow-up were also observed. Five of the 19 surviving patients in the surgical group had no benefit from the treatment.

Discussion

The authors state that their data confirms the benefits of lung volume reduction surgery suggested by other studies. They point out that only a small proportion of patients with COPD may benefit from the surgery, although their number may be large. They also point out that the selection criteria may need to improve before the operation becomes routine.

Additional information

Additional references:

The National Emphysema Treatment Trial Research Group: **Rationale and design of The National Emphysema Treatment Trial: a prospective randomized trial of lung volume reduction surgery.** *Chest* 1999, **116**:1750-1761.

The National Emphysema Treatment Trial Research Group: **Rationale and design of The National Emphysema Treatment Trial: a prospective randomized trial of lung volume reduction surgery.** *J Cardiopulm Rehabil* 2000, **20**:24-36.

Describes the multicenter, randomized trial to be conducted - similar to the present study.

Cooper JD, Patterson GA, Sundaresan RS, Trulock EP, Yusem RD, Pohl MS, Lefrak SS: **Results of 150 consecutive bilateral lung volume reduction procedures in patients with severe emphysema.** *J Thorac Cardiovasc Surg* 1996, **112**:1319-1329.

Large series of lung volume reduction surgery.

Gelb AF, McKenna RJ Jr, Brenner M, Schein MJ, Zamel N, Fischel R: **Lung function 4 years after lung volume reduction surgery for emphysema.** *Chest* 1999, **116**:1608-1615.

Describes long term results of lung volume reduction surgery.

References

1. Geddes D, Davies M, Koyama H, Hansell D, Pastorino U, Pepper J, Agent P, Cullinan P, MacNeill SJ, Goldstraw P: Effect of lung-volume-reduction surgery in patients with severe emphysema. *N Engl J Med.* 2000, **343**: 239-245.