

LUNG VOLUME REDUCTION SURGERY: EVIDENCE FOR THE RESURRECTION OF AN OLD OPERATION?

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Emphysema of the lung is a chronic, debilitating disease characterized by a progressive destruction of the alveolar wall and hyperinflation of the lung. As the disease progresses, some patients will become intolerably dyspneic. Treatment with corticosteroids and oxygen will fail to alleviate this problem adequately, leaving lung transplantation as the only option. Unfortunately, this is not always possible.

In the 1950s, an operation for the treatment of severe dyspnea was introduced. It consisted of reducing the hyperinflated lung by removing portions of the most severely destroyed parenchyma to improve the actions of the chest wall and diaphragm. This operation was abandoned, but was reintroduced in the early 1990s by Cooper from St. Louis.¹ In his early studies he obtained remarkable results in a number of patients, which encouraged many investigators from the United States and Europe to evaluate this relatively new, quasi-experimental palliative procedure.

This issue of the journal contains 2 articles on lung volume reduction: one is from Malthaner and Miller in London and Hamilton, Ont. (page 377) and the other from Tan and colleagues in Winnipeg (page 369).

Both groups, comprising well-trained thoracic surgeons with a strong

academic interest, report their evaluation of the benefits of lung volume reduction surgery (LVRS) in a selected population of emphysematous patients. They used a similar method for selecting, operating and evaluating the procedure pre- and postoperatively. Although the 2 reports contain a limited number of patients (24 reported by Malthaner and Miller and 10 reported by Tan and colleagues), the 2 groups combined make an acceptable experience to be considered. Both groups of investigators have understood that reporting objective data on pulmonary function is insufficient evaluation for this type of surgery. Because of the nature of the disease, data on palliation of dyspnea and quality of life after the procedure must be provided. As we all know, the evaluation of quality of life and palliation of symptoms are subject to controversy because they are considered soft data even when the best available tools are used. Both studies have utilized highly standardized methods for evaluating quality of life and disability. Malthaner and Miller used the health utilities index-mark III (HUI-III), which they claim to be particularly useful in evaluating research on LVRS. To better understand the effect of procedure, they reported their findings under headings such as impairment, disability and handicap. I think this is helpful.

The rates of morbidity and mortality reported by both studies is quite similar to those reported in the current surgical literature.² The modification of lung function after surgery is similar to what is reported in most series.² However, the results presented by the 2 groups with respect to quality of life and relief of dyspnea, do not show very dramatic improvement. For example, Tan and colleagues stated that the majority of their patients continued to have respiratory difficulty on moderate exertion, although the objective evaluation of dyspnea was improved. Even if both groups claim an increase in the quality of life with use of the medical outcomes study SF-36 institutional health index, the HUI-III used by Malthaner and Miller did not show any significant changes.

Many questions are not answered by these 2 reports, such as the cost of LVRS and its impact of the health system. Malthaner and Miller have mentioned this and other limitations of their report. The message that we must keep in mind from these papers is that LVRS is a palliative procedure and that the staging of emphysema and selection of patients must be better defined.

The tools to evaluate the subjective aspects of the outcome need to be refined, and the proposal by Malthaner and Miller to use HUI-III should be considered by those who are carrying out research in this field. We need to

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be very cautious about recommending or performing this type of procedure. We must remain skeptical about LVRS until results prove otherwise. We must keep in mind the possible placebo effect of surgery, the risk of unnecessary surgery and the fact that technology is not always a good response to all medical problems. The current evidence does not confirm scientifically that we are achieving something useful for the patients by performing LVRS. How-

ever, credit must go to the authors of both groups for taking care of such a difficult population of patients and for conducting their research meticulously and rigorously.

These 2 articles provide us with more information about LVRS and can serve as a guide for the present. We must await the completion of the Canadian randomized trial to obtain more evidence about LVRS as a palliative measure for severe dyspnea.

References

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