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Title **Comparison of Lung Volume Reduction Surgery with Medical Management for Emphysema**

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Aim

- To assess the evidence on whether lung volume reduction surgery (LVRS) improves quality of life, defers death, or affects lung function in patients with emphysema, compared to medical management (ie, drugs, oxygen, and lung rehabilitation).
- To identify the risks associated with LVRS, and to evaluate what level of risk is appropriate in patients with compromised quality of life.

Conclusions and results

Seven randomized controlled trials involving 1412 patients met the inclusion criteria and were considered reasonably well designed to provide an acceptable level of evidence.

Compared to medical management, LVRS does improve quality of life. Meta-analysis showed that LVRS offers a survival advantage compared with medical management for patients whose emphysema mainly affects the upper lobes of the lung and whose baseline exercise capacity is low. For patients with severe emphysema, however, LVRS is a palliative treatment. Although it improves quality of life, lung function, and exercise tolerance compared with medical management alone, it increases the short-term risk of death. There is no reduction in overall death rate at 2-year followup. Based on the compromised quality of life experienced by patients with severe emphysema, an acceptable level of surgical risk is difficult to define. Data on the associated risks are poorly documented.

Recommendations

Not applicable.

Methods

A systematic literature review identified randomized controlled trials that compared LVRS to medical management. Outcomes analyzed included quality of life, complications arising from treatment, mortality, shortness of breath, level of blood gases, exercise function, and pulmonary function. Where possible, meta-analyses were done to derive a statistical summary. Case-series studies were included to further elucidate the complications and mortality associated with LVRS. Trials and studies were independently selected by two reviewers. Methodological quality was assessed using the Jadad scale.

Further research/reviews required

More trials are needed to confirm which subgroup of patients is likely to benefit from LVRS. Randomized controlled trials are needed to compare LVRS and medical management in regard to safety issues and the occurrence and extent of adverse events.

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