

Lung volume reduction surgery shown to prolong and improve life for some emphysema patients

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Lung volume reduction surgery (LVRS) can have a significantly beneficial effect in patients with severe emphysema, according to the first ever study to randomize emphysema patients to receive either LVRS or non-surgical medical care.

"We found lung reduction surgery is good treatment alternative for selected emphysema patients since it not only improves survival but also meaningfully improves quality of life for a period of at least five years after the operation," said lead author of the study, Roberto Benzo, M.D., MSc. of the Mayo Clinic. "Patients who underwent LVRS, with the exception of those who had non-upper-lobe-predominant emphysema, had both a survival and quality of life benefit when compared to similar patients undergoing medical treatment only."

The results of the National Emphysema Treatment Trial (NETT) study were reported in the August 1 issue of the [American Journal of Respiratory and Critical Care Medicine](#), published by the American Thoracic Society.

The NETT group recruited 1,218 patients with severe emphysema and randomized them to either undergo LVRS or non-surgical medical treatment, which generally consisted of customized use of medication, oxygen support, smoking cessation and pulmonary rehabilitation. LVRS consists of removing a portion of emphysematous lung tissue in the

patient. While removing lung tissue in patients whose breathing is compromised may seem counterintuitive, severe emphysema causes "air trapping", where the patient can inhale, but is unable to force the air back out of the lung. This is one of the main causes of shortness of breath in patients with emphysema.

"By removing the section of lung that is primarily affected with severe emphysema, we can decrease air trapping and consequently the shortness of breath, which can thereby improve the patient's perceived quality of life," explained Dr. Benzo.

A total of 608 patients underwent LVRS and 610 received standard medical care. The patients were followed for five years or until they died. All endpoints except death were measured at six-month intervals. The primary outcome was a composite endpoint consisting of death or an "unquestionable and meaningful deterioration" in quality of life, defined as an 8-point or greater drop on the Saint George's Respiratory Questionnaire, a widely used standardized measure of quality of life in patients with respiratory disease.

In the total sample, the average time until a "composite event"—either death or a serious decline in quality of life— was one year for medically treated patients and two years for patients who had undergone LVRS. Patients whose emphysema was predominantly found in the upper lobes of their lungs—about 65 percent of [emphysema](#) patients— also showed quality of life and survival benefits greater than survival benefits alone, suggesting that they lived longer and better.

However, LVRS has a small but inherent danger of perioperative mortality.

"LVRS has risks that patients need to understand and acknowledge," said Dr. Benzo. "In NETT, close to five percent of the patients undergoing

lung reduction died in the post-operative period. However, once the post operative period is over, the quality of life benefit comes right away."

"NETT was landmark study: randomization was necessary at that point as we did not know the true benefits of the surgery," said Dr. Benzo.

"We now know the individuals that benefit from it. Randomization would be unethical now in the group of individuals that we now know get benefit. This study shed light on the palliative (overall well-being) benefits of the surgery, which many [patients](#) consider as important as the survival benefit

Source: American Thoracic Society ([news](#) : [web](#))

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