CEDARS-SINAI MEDICAL CENTER NEWS

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HIGHLIGHTS:
Lung volume reduction surgery is undergoing a renaissance as a treatment for emphysema – the nation's fourth leading cause of death – in part because a major National Institutes of Health study published in 2003 identified which patients were viable candidates. Much of that research was conducted by Cedars-Sinai physicians and surgeons. Charlotte Kelley, diagnosed with emphysema more than 25 years ago, recently underwent LVRS. "There are just so many things that are a breeze now," she said. "… I no longer spend every moment thinking about whether I can do this or do that, or if I'm going to be able to breathe or not."

AFTER LUNG VOLUME REDUCTION SURGERY, EMPHYSEMA PATIENT LOOKS FORWARD TO SPRING YARD WORK

LOS ANGELES (May 4, 2005) – Emphysema-sufferer and La Verne, Calif., resident Charlotte Kelley wished for the energy to go back to work, tend to her plants, or take her grandchildren to Disneyland – things she could do before a chronic, progressive lung disease stole her breath and robbed her blood of oxygen.

Her wish has come true, at least for months or several years, because of a procedure called video-assisted thoracoscopic lung volume reduction surgery performed at Cedars-Sinai Medical Center.

Although lung volume reduction surgery (LVRS) is not new, it is undergoing a renaissance as a treatment for emphysema – the nation's fourth leading cause of death – because a major National Institutes of Health study published in 2003 identified which patients were viable candidates. Much of that research was conducted by Cedars-Sinai physicians and surgeons. In fact, Cedars-Sinai was one of 17 centers participating in the National Emphysema Treatment Trial (NETT). Robert J. McKenna Jr., M.D., surgical director of the Center for Chest Diseases and medical director of Thoracic Surgery and Trauma was a principal investigator, as was Zab Mosenifar, M.D., medical director of the Center for Chest Diseases.

"The study showed that lung volume reduction surgery can make a big difference in quality of life, pulmonary function, exercise tolerance and even survival, but careful evaluation is needed to identify which patients may benefit from the operation. The most important factor for the selection of patients is the pattern of emphysema seen on CT scans and lung perfusion scans. The lungs are significantly enlarged and parts of the lungs do not function because the emphysema has destroyed some areas. This surgery is used to remove the bad areas to let the better areas work more effectively," said McKenna who has led many studies on lung diseases and innovative approaches to chest surgery.

According to Ward Houck, M.D., the surgeon who performed Kelley's operation and is in practice with McKenna, LVRS may be an appropriate option for 15 to 20 percent of emphysema patients. "Unfortunately, about 80 percent of people with emphysema are not candidates, based on the diffuseness of their disease. In other words, they don't have good areas of the lung that will make up for the bad areas that would be

(more)

removed. If you have a completely unhealthy lung and take a portion of it out, you're still left with a completely unhealthy lung."

Although there is an inherited form of emphysema, the irritation caused by smoking is blamed for the majority of cases. Damage to the air sacs in the lung, where oxygen from the air is exchanged for carbon dioxide in the blood, results in permanent holes in the tissue. The lungs' ability to transfer oxygen decreases and the lungs lose their elasticity, with patients feeling short of breath and having trouble exhaling.

"Emphysema is a progressive disease," Houck noted. "Once patients get to the point that they can't participate in pulmonary rehabilitation, they end up sitting in a chair in their home, locked in because they can't do anything. After a couple of years, they may die from pulmonary hypertension and respiratory failure."

According to Houck, while many large institutions with 10 or more thoracic surgeons may perform several hundred lung volume reduction surgeries annually, "the three of us in this practice did around 1,600 thoracic cases last year. Because Rob (McKenna) is so well known, the practice is well known and we have patients coming here not only from Southern California but other parts of the country and as far away as Mexico, France, Germany, and the United Arab Emirates."

Another factor that may draw patients to the surgeons and Cedars-Sinai is that McKenna and his colleagues are pioneers and specialists in the minimally invasive, video-assisted thoracoscopic surgery (VATS) that results in much smaller incisions and shorter recovery times compared to traditional operations.

LVRS is accomplished in about an hour and is performed through small incisions in the patient's sides, using a small scope that has a camera lens at the tip. An endotracheal tube is placed in the airway to enable one lung to continue working while the other is "deflated" for manipulation.

Typically, three small incisions are made in the patient's side. The smallest, about one-half centimeter, located at the bottom of the ribs, is where the scope with the camera lens is inserted. A two-centimeter incision farther up accommodates an endoscopic stapler, and a one-centimeter incision midway up the patient's side enables surgeons to hold the lung in place during the procedure.

After removing most of the upper lobe of one lung, the surgeons close the two upper incisions and insert a plastic tube in the lower one to allow any air leaking from the lung to escape. The entire surgical procedure is then repeated on the other side. Chest tubes usually are removed within a few days, after the lung has healed.

Charlotte Kelley was diagnosed with emphysema in 1979. "It took me a while to quit smoking, which I did in 1982," she said. "It really didn't affect my life too much until the last five or six years, when it just seemed to get steadily worse. And then a year ago October, when we had the fires here in Southern California, I really got ill from the smoke. I was very close to the smoke here."

She left home to stay with a friend, but ended up in a hospital. "With this disease, if you become ill it takes you a while to bounce back. But in the case of the fires, I don't think I did. It really hit me," said Kelley, 69.

Returning home dependent on an oxygen tank, Kelley resumed her life as best she could. Younger in appearance and in spirit than her years, she was embarrassed to drag along an oxygen tank when she went into a store and found herself more anxious than ever to find a shopping cart to lean on. But she had read about a procedure that was helping certain patients delay the effects of the advancing disease, and in early 2004 she asked the director of her local pulmonary rehabilitation program if she would be considered too old for lung volume reduction surgery.

"She said, 'Of course not. I'll give you a name and a number,'" recalled Kelley, who was referred to the Cedars-Sinai Center for Chest Diseases. A series of tests determined that she had the type of emphysema that could benefit from LVRS and she underwent the operation on Oct. 20, 2004.

For patients like Kelley who are able to undergo LVRS, the procedure may provide months or years of improvement.

"Among patients who do well, the average benefit of the surgery is somewhere between two and three years. Most of the patients will be able to go off the oxygen, decrease their use of inhalers, increase their exercise capacity and live life like they want to, but usually within about two or three years, their pulmonary function continues to decline," said Houck. "The question is, how rapidly will it progress? Some patients may do well for only six months. On the other hand, we have people who are still alive and doing well after five and seven years."

Houck said predicting which patients will respond well to LVRS may depend as much on patient attitude as on diagnostic imaging. "You have to have somebody who is motivated. Patients don't wake up after surgery and say, 'I feel better now. I'm not short of breath anymore.' They're just as short of breath the next day as they were the day before. They're still going to need oxygen. What we're allowing them to do is continue their pulmonary rehabilitation. Most patients with emphysema this severe have reached the point where no matter how hard they work they can't go the next step. They can't get to the next level of getting off the oxygen and improving their lung function with exercise. Most patients will not experience the full benefit of the surgery for about three months. They have their surgery, they're still on their oxygen and they're still going to pulmonary rehab, but suddenly they're able to go further."

Kelley is the exception to the rule. Despite having coronary artery bypass operations in 1996 and 1999, she came through lung volume reduction surgery without complication, went home eight days later and returned to pulmonary rehabilitation within about a month – and she quickly noticed significant improvement.

"I'm looking forward to spring so I can plant some flowers. There are just so many things that are a breeze now. I don't hesitate to walk in a store," she said. "I have found since the surgery that I no longer spend every moment thinking about whether I can do this or do that, or if I'm going to be able to breathe or not. It's not my number one thing anymore. And it's just wonderful."

One of only four hospitals in California whose nurses have been honored with the prestigious Magnet designation, Cedars-Sinai Medical Center is one of the largest nonprofit academic medical centers in the Western United States. For 17 consecutive years, it has been named Los Angeles' most preferred hospital for all health needs in an independent survey of area residents. Cedars-Sinai is internationally renowned for its diagnostic and treatment capabilities and its broad spectrum of programs and services, as well as breakthroughs in biomedical research and superlative medical education. It ranks among the top 10 non-university hospitals in the nation for its research activities and was recently fully accredited by the Association for the Accreditation of Human Research Protection Programs, Inc. (AAHRPP). Additional information is available at www.cedars-sinai.edu.

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