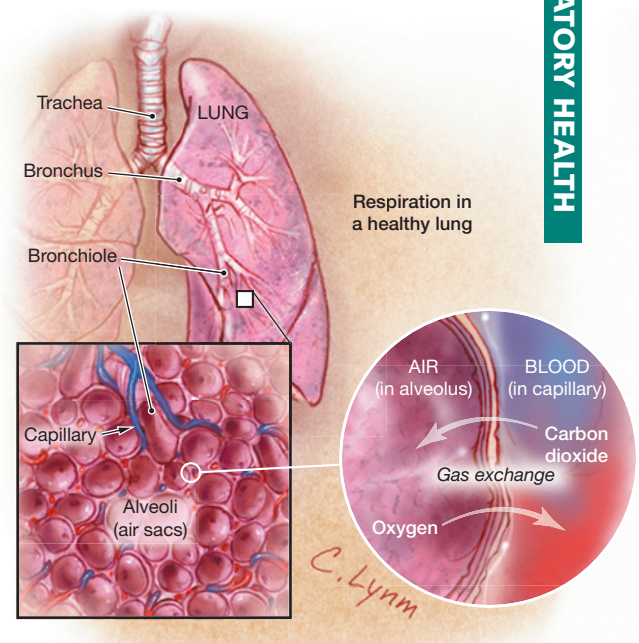
Lung Transplantation

The lungs are vital organs where oxygen enters the bloodstream and carbon dioxide leaves the blood during the breathing process. If the lungs are severely diseased, the body does not receive enough oxygen to function properly. When medical treatments are not sufficient to ease the symptoms of severe lung disease, a lung transplant may be considered for some patients. Lungs for transplantation come from a brain-dead person, if that person had requested organ donation or if the family members give consent for organ donation. Because the lung tissue needed for transplantation must be suitable for a **recipient** (the person who will receive the lungs), tests are performed on the donor lungs before they are offered for transplantation. Donated lungs available for transplantation are scarce. The December 15, 2010, issue of *JAMA* contains an article about lung transplantation.



THE TRANSPLANTATION PROCESS

- Persons with severe lung disease are usually referred to a **pulmonologist**, a doctor with specialized training in the treatment of lung diseases. After smoking cessation, trying different medications, supervised exercise, supplemental oxygen, and other types of treatment, lung transplantation may be considered. Lung transplantation is major, life-threatening surgery and is offered only to suitable patients who have not responded to all other available medical treatments.
- Consultation with the transplant team includes an intensive medical history and physical examination, extensive testing, and review of a person's social support system. Evaluation by the transplant team does not guarantee placement on the transplant list, since many things influence who is an appropriate candidate.
- Once a donated lung becomes available, the patient receives a call from the transplant team. The patient must make his or her way quickly to the transplant center and prepare for major surgery.
- When the patient arrives in the operating room, **general anesthesia** (complete unconsciousness for the procedure) is administered and monitoring devices are inserted. Then the surgical team begins the operation, which can last for many hours.
- If a double-lung or combined heart-lung transplant procedure is planned, then the patient is put on **cardiopulmonary bypass** (the heart-lung machine) during the operation.

POSTTRANSPLANTATION CARE

Persons who have a lung transplant need to stay in the intensive care unit (ICU) after their surgery and may remain on the ventilator for a while until their new lung works well enough. A hospital stay is necessary until the transplant team is satisfied with the patient's progress, including making sure there are no signs of rejection. Because the body sees the new lung as "foreign," it makes antibodies to try to **reject** (destroy) the transplanted lung. For this reason, anyone with a lung transplant must take antirejection medications for the rest of his or her life. In addition to antirejection medications, other treatments continue, including good nutrition, rehabilitation, and supervised exercise programs. Persons who have had a lung transplant should never smoke or be around secondhand smoke. It is crucial for patients to maintain a healthy lifestyle and to follow up as scheduled with the medical team.

FOR MORE INFORMATION

- National Heart, Lung, and Blood Institute
  www.nhlbi.nih.gov
- American Lung Association
  www.lungusa.org
- American College of Chest Physicians
  www.chestnet.org
- United Network for Organ Sharing
  www.unos.org

INFORM YOURSELF

To find this and previous JAMA Patient Pages, go to the Patient Page link on *JAMA*'s Web site at www.jama.com. Many are available in English and Spanish. A Patient Page on chronic obstructive lung disease was published in the June 16, 2010, issue; one on mechanical ventilation was published in the March 3, 2010, issue; and one on intensive care units was published in the March 25, 2009, issue.

Sources: American College of Chest Physicians; National Heart, Lung, and Blood Institute; American Lung Association; United Network for Organ Sharing; Health Resources & Service Administration, United States Department of Health and Human Services

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