Lung Allocation Score Boosts Organ-Use Efficiency

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MADRID — Early results show that the recently introduced lung allocation score is making it easier to match donor lungs with transplant recipients.

Since its launch in May 2005, the lung allocation score has meant less time spent searching for the patient who'll receive an available lung, Dr. Stuart C. Sweet said at the annual meeting of the International Society for Heart and Lung Transplantation.

From May 4, 2005, through Feb. 21, 2006, a total of 1,189 patients in the United States received a lung transplant based on the lung allocation score. Five patients were screened on average before an available lung was matched with a recipient.

By comparison, from May 4, 2004, through Feb. 21, 2005, 995 lungs were transplanted, with an average of 11 patients screened for each match, said Dr. Sweet, medical director of the pediatric lung transplant program at Washington University in St. Louis. The older allocation method ranked prospective lung recipients based entirely on the time that they had spent on the national waiting list.

"The allocation score is doing what it was designed to do. But we don't yet know if it will improve patient outcomes," commented Dr. Denis Hadjiliadis, associate medical director of the lung transplantation program at the University of Pennsylvania in Philadelphia. In the past, physicians often turned a donor organ down if it wasn't an excellent match, which led to wasted organs. Now, with the organs offered first to the sickest patients, fewer lungs are wasted, Dr. Hadjiliadis said in an interview.

The lung allocation score was developed through the Organ Procurement and Transplantation Network, a part of the United Network for Organ Sharing. The idea was to boost the efficiency of lung transplants by ranking recipients accord-

Lung Allocation Biased Against PAH Patients

MADRID — The new system for allocating donor lungs to transplant recipients—the lung allocation score—has a built-in bias against patients with pulmonary arterial hypertension.

But the United Network for Organ Sharing, which began applying the lung allocation score to donor lungs in the United States in May 2005, is aware of the bias and plans to fix it, Dr. Stuart C. Sweet said at the annual meeting of the International Society for Heart and Lung Transplantation.

The problem arose because relatively few patients who seek lung transplants have pulmonary arterial hypertension (PAH), which meant that limited data were available to create an accurate formula for estimating a patient's likely benefit from a lung transplant, said Dr. Sweet, medical director of the pediatric lung transplant program at Washington University in St. Louis.

The lung allocation score ranks patients on the waiting list for donor lungs based on their estimated survival benefit from transplantation, which is calculated based on patients' expected survival while awaiting a transplant and their projected survival after transplantation occurs.

Another factor that has worked against PAH patients is their high mortality during the first 30 days following lung transplantation. "Among all of the diagnostic groups that get lung transplants, patients with PAH have low survival, mostly because of their high postoperative mortality," said Dr. Reda E. Girgis, of the division of pulmonary and critical care medicine at Johns Hopkins University in Baltimore.

Dr. Girgis is leading an effort by the International Society for Heart and Lung Transplantation, and he is also working with PAH-patient support groups to get the lung allocation score changed to better reflect the needs of patients with PAH.

A relatively small number of patients who are awaiting lung transplantation have PAH. From May 4, 2005 (when the new allocation scoring system began) through Dec. 31, 2005, 2% of all lung transplants in the United States were in patients with primary pulmonary hypertension, said Dr. Denis Hadjiliadis of the lung transplantation program at the University of Pennsylvania in Philadelphia.

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ing to their expected survival on the waiting list without a new lung and their anticipated survival following transplantation. The difference between these two projections is a patient's transplantation benefit, the net amount of added survival a patient gains following transplantation based on his or her initial clinical status.

Because patients' scores change as their clinical status changes, it's the responsibility of the transplant coordinator at each center to regularly post updated scores, sometimes every day. The system mandates recalculating a patient's score at least once every 6 months. If that's not done, the patient's score automatically drops to zero.

The calculation involves nothing unique to lungs. Eventually, the allocation of all organs will be based on similar assessments. It started with lungs because this transplantation specialty was in the "right place at the right time," Dr. Sweet said in an interview.

By eliminating the advantage of length of time on the waiting list, the new system has obviated the need to list recipients before they truly need a new lung. This has led to a reduction in the number of patients listed. The total stood at 3,281 as of Feb. 22 of this year, compared with 3,885 on the list as of May 4, 2005, a 16% drop.

The number of "active" patients on the list fell even more sharply, from 1,715 on the day the new system went into effect in May 2005 to 1,295 as of Dec. 31, 2005, a 24% drop.

The scoring system has also shifted the types of patients who get lung transplants. Prior to the new rules, 46% of transplants occurred in patients with chronic obstructive pulmonary disease, but this percentage had fallen to 38% by this past winter. In contrast, the percentage of transplants going to patients with interstitial pulmonary fibrosis rose from 31% before the scoring system to 44% by last winter.

This shift makes sense because pulmonary fibrosis is the deadliest disease, Dr. Hadjiliadis said. In the past, patients with interstitial pulmonary fibrosis had a disproportionately high rate of death while awaiting a transplant.

Scores can range from 0 to 100. Under the new system, patients with a score of 45 or greater generally receive a transplant within a few weeks of going on the list, said Dr. Hadjiliadis, who has done his own analysis of lung transplantation since the new system went into effect. But patients with lower scores are also receiving new lungs. From July to December 2005, nearly two-thirds of all lung transplants went to patients with scores of 30-39, he reported in a poster at the meeting. ■