

Use of Hearts From High-Risk Donors Waning

BY SUSAN LONDON

FROM THE ANNUAL MEETING OF THE INTERNATIONAL SOCIETY FOR HEART AND LUNG TRANSPLANTATION

SAN DIEGO – Transplantation physicians may be increasingly avoiding the use of hearts from donors who have high-risk characteristics, even as demand for transplantable hearts continues to outstrip supply, suggests a retrospective study of more than 42,000 heart transplant recipients.

The percentages of transplanted hearts from donors who have characteristics that are associated with an elevated risk of poor outcomes for the recipient (such as older age or hypertension) initially increased during the recent 2-decade study period. But thereafter, they plateaued or fell – in some cases to levels seen at the start of the period.

There are two possible explanations for the declining use of hearts from high-risk donors, lead investigator Dr. Jose N. Nativi told attendees of the meeting.

“One hypothesis is that there is a concern about adverse outcomes” for recipients who would be given these hearts, in the wake of publications describing actual experience with their use, he explained.

“The second hypothesis is that, probably, we have another option to offer these patients, that is, the increasing utilization of left ventricular assist devices,” Dr. Nativi said.

“So for a patient who is critically ill, instead of offering them a high-risk donor, now we have the luxury in some centers to offer them an alternative, that is, mechanical support,” he added.

There have been several key milestones in efforts to make more organs available for transplantation in the

United States, according to Dr. Nativi, a fellow in cardiology with the University of Utah and the UTAH (Utah Transplantation Affiliated Hospitals) Cardiac Transplant Program in Salt Lake City.

The Crystal City Conference in 2001 resulted in a formal recommendation to expand the use of hearts from high-risk donors (*Circulation* 2002;106:836-41). In addition, the Organ Donation Breakthrough Collaborative in 2003 encouraged increased consent and donation by individuals with high-risk features (*Crit. Care Nurs. Q.* 2008;31:190-210).

“These efforts are resulting in the expansion of acceptable donor criteria toward high-risk donors,” he said. “But the high-risk donor still remains a matter of controversy.”

In the year after the collaborative, there was an increase in the number of all types of organs donated – with the sole exception of hearts. “So we are still struggling to find donors for heart recipients,” Dr. Nativi commented.

To assess temporal patterns in the use of hearts from high-risk donors, the investigators analyzed data from the U.S. Scientific Registry of Transplant Recipients, identifying adult patients who underwent single-organ heart transplantation in 1987-2009.

They were divided into three eras by transplantation date: era 1 (1987-1996), when standard donor criteria were used; era 2 (1997-2003), when there was increasing acceptance of the high-risk donor, and reports about the use of organs from such donors increased;

and era 3 (2004-2009), after the collaborative was established.

Results were based on 42,023 patients who underwent transplantation during the study period (42% in era 1, 32% in era 2, and 26% in era 3), Dr. Nativi reported.

In multivariate analyses that included more than 40 donor characteristics as well as a transplant center’s patient volume, recipients were more likely to die in the first year post transplantation if their donor was older than 40 years of age (hazard ratio, 1.2), was female (HR, 1.2), had a cerebrovascular cause of death (HR, 1.6), or had a history of hypertension (HR, 1.3).

DR. NATIVI

Temporal trends showed a biphasic pattern for three of these high-risk characteristics, with the percentage of hearts having the characteristic increasing significantly between era 1 and era 2, but then decreasing significantly between era 2 and era 3.

For example, the percentage of hearts from donors older than 40 years averaged 21%, 30%, and 28% in eras 1, 2, and 3, respectively. The pattern was similar for hearts from donors who were female (29%, 31%, and 27%) and those having a cerebrovascular cause of death (26%, 29%, and 23%).

The percentage of hearts from donors having hypertension increased from 4% to 11% between eras 1 and 2, and again from 11% to 13% between eras 2 and 3. But in clinical terms, the latter change was really more of a plateau, according to Dr. Nativi. ■



We can now offer a critically ill patient a left ventricular assist device rather than a high-risk donor heart.

Survival Data Show Viability of Transplants in Older Patients

BY SUSAN LONDON

FROM THE ANNUAL MEETING OF THE INTERNATIONAL SOCIETY FOR HEART AND LUNG TRANSPLANTATION

SAN DIEGO – Heart transplant recipients in their 70s have outcomes that are generally similar to those of their counterparts in their 60s, new data show.

In a retrospective study of 18,534 wait-listed older adults, the rates of post-transplantation complications in septuagenarians were much the same as those

in sexagenarians, except that the former were in fact less likely to experience rejection. And on average, the septuagenarians lived roughly 8 years after getting their new heart, which is not much shorter than the 9.8 years seen in sexagenarians, according to results reported at the meeting.

“Selected septuagenarians – and I underscore the word selected – with advanced heart failure derive great benefit from heart transplantation,” said lead investigator Dr. Daniel Goldstein. “This

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Major Finding: Relative to sexagenarians, septuagenarians had both shorter unadjusted median survival (8.5 vs. 9.8 years) and predicted median adjusted survival (8.15 vs. 9.83 years), although most of the difference between groups appeared to result from a difference in the first year.

Data Source: A retrospective cohort study of 18,534 patients aged 60 years or older who were on the waiting list for heart transplantation.

Disclosures: Dr. Goldstein reported that he had no relevant financial disclosures.

is not every 70-year-old [who is] going to walk into your office.”

The findings raise the thorny ethical issue of expanding age limits on eligibility for heart transplantation, as organs are scarce and every heart given to an older adult is one that is not given to a young person, he noted.

One approach would be to limit transplantation to those septuagenarians who have the best risk profile. Another would be to use an alternative list, as first tested by the University of California, Los Angeles, whereby older recipients are given hearts that are typically rejected by transplant centers.

“I don’t see being able to do this without having an alternative list situation. UCLA is the perfect model,” asserted Dr. Goldstein, a cardiothoracic surgeon at the Montefiore Einstein Center for Heart and Vascular Care at Montefiore Medical Center in the Bronx, N.Y. “It would be hard to get an 18-year-old donor and give the heart to a 70-year-old, but if you take in a heart that nobody else wants, I think it’s a little more palatable.”

With the aging of the population and the epidemic of heart failure among older adults, this dilemma is likely to intensify, he noted.

Centers generally use an age cutoff of 65 years for cardiac transplantation eligibility. But an informal survey of centers in the New York City and New Jersey areas suggests that “there is great variability in who we think is too old for transplantation,” he said. “It’s clear that more centers are doing away with chronological age criteria.”

In the study, the investigators analyzed data from the UNOS (United Network for Organ Sharing) database for 1987-2010, first looking at trends among 18,534 adults aged 60 years or older put on the waiting list for a primary, single-organ heart transplantation. Results showed that “in the current era, septuagenarians are being transplanted more frequently, without a doubt,” Dr. Goldstein said. The number undergoing transplantation increased almost every year, and their median age was 71 years.

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Consider Ethics, Consequences

The boundaries of reasonable medical care are being pushed daily, and it now appears that heart transplantation can be done safely with acceptable survival in septuagenarians. Do these recipients receive the same posttransplant survival benefit as sexagenarians? Not quite, but it’s pretty close. The small survival differences between the septuagenarians and sexagenarians suggest that age (and perhaps selection bias) should allow for older patients to be considered, in certain circumstances, as candidates. What sets organ transplantation apart

from other heroic interventions (e.g., experimental chemotherapy for patients with metastatic cancer) is that donor organs are an exquisitely limited commodity. The ethics of increasing the recipient pool by including older patients must be considered, and this change may have significant consequences for younger patients on the



wait list.
DR. SUDISH MURTHY is an ACS fellow and surgical director of the Center for Major Airway Disease at the Cleveland Clinic.