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RESEARCHERS REVEAL WHY KIDNEYS FROM OLDER DONORS DO NOT LAST AS LONG AS THOSE FROM YOUNGER INDIVIDUALS

Impaired Filtering Causes Self-Perpetuating Injury in Older Kidneys

Washington, DC (Tuesday, September 23, 2008) — Kidneys from older donors often do not survive long after transplantation because of certain structural dysfunctions that can occur as the kidney ages, according to a study appearing in the January 2009 issue of the *Journal of the American Society Nephrology* (JASN). The findings indicate that the number of functioning glomeruli—the filtering units of the kidney—drops significantly with age, leading to a self-perpetuating injury in the rest of the kidney.

Thousands of individuals are on the waiting list for kidney transplants in the United States, and the average waiting time is more than three years. One response to the donor deficit has been to increase the number of transplants from older deceased donors. However, these kidneys exhibit a striking reduction in the 5-year graft survival rate. “We need to understand the process of renal senescence better in order to better select older donor organs that are likely to function well after transplantation,” said Jane C. Tan, MD, of the Stanford University Medical Center in Stanford, California.

To understand the aging-related changes in the kidney that account for the shortened survival of older organs, Dr. Tan and her colleagues analyzed the structures of kidneys from 20 aging (>55 years) and 23 youthful (<40 years) deceased donors. They also looked specifically at the glomeruli of a subset of 13 aging and 12 youthful deceased donors that were taken prior to transplantation.

The investigators found a 32% depression of the glomerular filtration rate, a measure of the kidneys’ ability to filter and remove waste products, in the aging vs youthful groups. In addition, the number of functioning glomeruli was profoundly depressed in older kidneys compared with younger kidneys. The authors proposed that this could lead to a “remnant kidney” phenomenon, whereby a self-perpetuating injury to the remaining kidney tissue occurs, ultimately contributing to shortened survival of the transplanted organ.

MORE

Information from this study might be useful for selecting kidneys from older donors when younger organs are not available. Kidneys with a greater number functioning glomeruli would clearly be better suited for transplantation than those with fewer glomeruli.

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The article, entitled “Glomerular Function, Structure and Number in Aging Deceased Donor Kidney Transplants,” will appear online at <http://jasn.asnjournals.org/> on Wednesday, September 24, 2008, and in the January 2009 print issue of JASN.

ASN is a not-for-profit organization of 11,000 physicians and scientists dedicated to the study of nephrology and committed to providing a forum for the promulgation of information regarding the latest research and clinical findings on kidney diseases. ASN publishes JASN, the *Clinical Journal of the American Society of Nephrology* (CJASN), and the *Nephrology Self-Assessment Program* (NephSAP). In January 2009, the Society will launch *ASN Kidney News*, a newsmagazine for nephrologists, scientists, allied health professionals, and staff.

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