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ASN Contact: Shari Leventhal • 202-416-0658 (p) • sleventhal@asn-online.org

KIDNEY WEIGHT MATTERS WHEN IT COMES TO TRANSPLANTATION

Small Kidney Weight to Recipient Weight Ratio Increases Risk of Transplant Failure

Washington, DC (Monday, May 17, 2010) — Receiving an organ low in weight in relation to the recipient's body weight increases kidney transplant recipients risk of complications and transplant failure, according to a study appearing in an upcoming issue of the *Journal of the American Society Nephrology* (JASN). The results suggest that compatibility between a donated kidney's weight and the weight of the recipient could improve the success of transplantation.

Few studies have examined the direct impact of matching a donated kidney's weight to the weight of a transplant recipient. To investigate, Professor Jean Paul Souillou (Institut National de la Santé Et de la Recherche Médicale (INSERM) Unité 643 and Institut de Transplantation Et de Recherche en Transplantation (ITERT), in Nantes, France) and his colleagues studied how kidney weight to recipient weight ratios affect the long-term kidney health of individuals who receive transplants.

After following 1189 patients for an average of 6.2 years after transplantation, the investigators found that the greater the incompatibilities of weight ratios, the more likely patients were to develop kidney problems. Specifically, a low kidney weight to recipient weight ratio (<2.3 g/kg) increased the risk of developing inadequate kidney filtration, excess urinary protein excretion, hypertension, kidney scarring, and transplant failure. This low kidney weight to recipient weight ratio was associated with a 55% increased risk of transplant failure after two years of follow-up.

"This information is potentially useful for thousands of transplantations and provides a new opportunity to improve long-term graft survival," said Professor Souillou. He added that the clinical impact of the kidney weight to recipient weight ratio is similar to what was described decades ago for human leukocyte antigens, which are the major compatibility markers used today to determine transplant-recipient matches.

Study co-authors include Magali Giral, MD, PhD, Yohann Foucher, PhD, Georges Karam, MD, Yann Labrune, Pascal Daguin (ITERT); Michèle Kessler, MD (Centre Hospitalier Universitaire de Brabois); Bruno Hurault de Ligny, MD (Centre Hospitalier Universitaire de Clemenceau); Mathias Büchler, MD, PhD (Centre Hospitalier

Universitaire de Bretonneau); François Bayle, MD (Centre Hospitalier Universitaire de Grenoble); Carole Meyer, MD (Centre Hospitalier Universitaire de Strasbourg); Nathalie Trehet, Karine Renaudin, MD, and Anne Moreau, MD (Centre Hospitalier Universitaire de Nantes).

In reviewing the results of Professor Souillou's study in an accompanying editorial, Ron Shapiro, MD (University of Pittsburgh) stated that "the authors are to be congratulated for describing a novel measure that may have important implications for long-term outcomes in renal allograft recipients." He noted, however, that because living donors made up less than 1% of the study's cases, it is not clear if the findings hold true for recipients other than those who receive deceased donor kidneys.

Also, Dr. Shapiro noted that kidneys from very young pediatric donors might be associated with different outcomes, particularly if two kidneys from one child are transplanted into an adult, as is commonly done). According to a 2009 study in the *Clinical Journal of the American Society of Nephrology* (CJASN), a single kidney from a very young deceased donor maintains the health of an adult with kidney failure.¹ Other studies have reported more complications when single kidneys from very young donors are transplanted into adults.

Disclosures: The authors of the study and the editorial reported no financial disclosures.

The article, entitled "Kidney and Recipient Weight Incompatibility Reduces Long-Term Graft Survival," (doi 10.1681/ASN.2009121296) and the accompanying editorial, "Size Matters in Renal Allograft Survival," (doi 10.1681/ASN.2010040380) will appear online at <http://jasn.asnjournals.org/> on May 20, 2010.

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1. Zhang R, Paramesh A, Florman S, et al. Long-term outcome of adults who undergo transplantation with single pediatric kidneys: how young is too young? *Clin J Am Soc Nephrol.* 2009;4(9):1500-1506.