Medical Xpress

Unrelated kidney donor study shows age and obesity increase complications

September 7 2010

Patients who have received a new kidney are significantly more likely to develop transplant renal artery stenosis (TRAS) if they are obese or over 50, according to research published in the September issue of the *Journal of Renal Care*.

Researchers from Iran studied 360 recipients who had received kidneys from unrelated donors to discover what factors increased the risk of TRAS, where the renal arteries narrow, impeding blood flow to the kidney.

They found that having had a previous transplant, elevated triglyceride (fatty molecule) levels, cytomegalovirus (CMV) infection and delayed graft function also significantly increased the risk of TRAS.

"TRAS is an important cause of sustained and severe high blood pressure after kidney transplants" explains Dr Ashkan Heshmatzade Behzadi from the Iran University of Medical Sciences.

"It accounts for three-quarters of all post-transplant vascular complications and can be corrected with surgery or angioplasty. It usually occurs within two years of surgery, but can happen at any time.

"Our study set out to discover what increases the risk of late onset TRAS - more than three months after surgery - in living unrelated donor kidney recipients."

Living non-related kidney donations were legalised in Iran in 1988. An independent agency staffed by volunteers - the Dialysis and Transplant Patients Association - arranges contact between donors and recipients and this Government funded and regulated process compensates donors for their kidney.

The people who took part in the study ranged from 16 to 77, with an average age of 40. Just under seven per cent of the patients developed TRAS and their profiles were compared with the 93 per cent who did not.

This showed that:

- Patients in the TRAS group tended to be older than those in the no TRAS group (51 years-old versus 39). Being over 50 increased the risk by 190 per cent.

- TRAS group members also had a higher BMI than those without TRAS (29 versus 22). Having a BMI of 30 or more, which is classified as obese, increased the risk of TRAS by 697 per cent.

- Elevated triglyceride (fatty molecule) levels were higher in the TRAS group (29 per cent versus six per cent) and increased the risk by 348 per cent.

- CMV infection was present in a higher percentage of TRAS patients (96 per cent versus 71 per cent) and increased the risk by 329 per cent.

- Delayed graft function (DGF) was present in more TRAS patients (33 per cent versus four per cent) and increased the risk by 329 per cent. DGF was also more likely to occur in patients

who had had previous transplants.

- The researchers found no statistically significant differences between the two groups in: donor age, gender of the recipient, warm ischemia time, pre-transplant diabetes and high blood pressure and LDL and HDL cholesterol.

"TRAS should be suspected in any kidney transplant patient with severe or uncontrolled high blood pressure and/or kidney function deterioration that cannot be explained by rejection or drug nephrotoxicity" concludes Dr Heshmatzade Behzadi.

"Early diagnosis and treatment of TRAS before irreversible structure changes take place in the transplanted organ may enable clinicians to restore full blood flow with minimal risks to the patient."

"The worldwide prevalence of end-stage kidney disease is increasing and demand for transplant organs significantly exceeds supply" explains Dr Cordelia Ashwanden, the journal's editor-in-chief. "That is why it is so important to explore the pros and cons of all forms of kidney transplants, including those from living unrelated donors.

"It is estimated that about four out of ten of all kidney transplants use organs legally provided by relatives and unrelated living donors, as opposed to deceased donors, and that the practice has increased significantly over the last decade.

"This paper adds valuable information on the clinical implications of using unrelated donor kidneys when it comes to the incidence of TRAS, an important post-transplant vascular complication."

More information: Incidence and risk factors of transplant renal artery stenosis in living unrelated donor renal transplantation. Kamali et

al. Journal of Renal Care. 36(3), pp 149-152. (September 2010). DOI: 10.1111/j.1755-6686.2010.00188.x