What’s the Fracture Risk after Kidney Transplantation?

Analysis of population-based data questions whether kidney transplant recipients are truly a “high-risk” group for fractures, reports a study in *Transplantation*.

Using Ontario healthcare databases, the researchers estimated cumulative rates of proximal humerus, forearm, and hip fractures at three, five, and ten years after kidney transplantation. These and other fracture outcomes were assessed in 4821 adult transplant recipients, median age 50 years, stratified by sex and age.

Female kidney recipients aged 50 years or older had the highest three-year cumulative incidence of nonvertebral fractures: 3.1 percent. In the overall sample of transplant recipients, three-year fracture incidence was 1.6 percent. That was significantly higher than the 0.5 percent rate in the general population with no previous nonvertebral fractures or the 1.1 percent rate among patients with chronic kidney disease not receiving dialysis.

However, the fracture incidence for kidney transplant recipients was lower than the 2.3 percent rate among the general population with previous nonvertebral fracture. For all kidney recipients, the 10-year cumulative incidence of hip fracture was 1.7 percent, compared to the 3.0 percent cut-off point defined as “high risk” in current clinical guidelines. The three-year cumulative incidence of falls among all transplant patients was 7.9 percent, increasing to 11.1 percent for women aged 50 or older.

Kidney transplant patients have sometimes been considered a group at high risk for fractures, although reported rates vary widely. The new analysis suggests that, while relative fracture risk is higher than in other populations, the absolute risk appears low. The researchers write, “[D]espite the changes in mineral metabolism and the use of steroids after kidney transplantation, recipients may not be a high-risk group for fracture” [Naylor KL, et al. Fracture incidence in adult kidney transplant recipients. *Transplantation* 2016; 100:167–175].

In Kidney Donors, Reduced GFR Is Cardiovascular Risk Factor

The reduction in glomerular filtration rate (GFR) after living kidney donation is associated with increased left ventricular mass and other changes in cardiovascular structure and function, reports a study in *Hypertension*.

The study included 68 living kidney donors and 56 non-donor controls enrolled in the UK prospective Chronic Renal Impairment in Birmingham—Donor study. Potential adverse structural and functional cardiovascular effects associated with unilateral nephrectomy were assessed. The primary outcome was change in left ventricular mass from baseline to 12 months, assessed by magnetic resonance imaging.

Twelve months after nephrectomy, living kidney donation was associated with a 30 mL/min/1.73 m² decrease in isotopic GFR. Left ventricular mass increased by 7 g in the donors, compared to a 3 g decrease in controls. Living kidney donors also had a significant increase in left ventricular mass to volume ratio, and significant decreases in aortic distensibility and global circumferential strain.

Living kidney donors were more likely to develop detectable levels of highly sensitive troponin T and microalbuminuria: odds ratio 16.2 and 3.8, respectively. There were also significant increases in serum uric acid, parathyroid hormone, fibroblast growth factor-23, and high-sensitivity C-reactive protein, but no change in ambulatory blood pressure. The increase in left ventricular mass was independently related to the decrease in isotopic GFR.


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