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## **Incident fractures in kidney transplant recipients: A nationwide cohort study**

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**Objectives:** Increased fracture incidence is a challenging issue among kidney transplantation recipients (KTRs). This study investigated the incidence, location, and predictors of fracture following kidney transplantation (KT).

**Methods:** Data were obtained from the Korea Organ Transplantation Registry, a nationwide cohort study of KTRs. A total of 5403 KTRs who received KT between January 2014 and June 2019 were included. We estimated incidence rates and risk factors of fracture using Kaplan-Meier method and Cox proportional hazard model.

**Results:** At median follow-up of 31.6 (18.1 – 46.8) months, 79 patients developed incident fracture. The cumulative incidence of fracture was 2.23% at 5 years. The most frequent locations of fracture were foot (26.3%) and leg (25.0%). Older recipient age [hazard ratio (HR) = 1.038, 95% confidence interval (CI), 1.011 - 1.067;  $P = 0.007$ ] and diabetes mellitus (HR = 2.404, 95% CI, 1.383 – 4.180;  $P = 0.002$ ) at baseline were associated with higher risks for fracture after KT, while the use of anti-thymocyte globulin as induction therapy (HR = 0.233, 95% CI, 0.073 – 0.748;  $P = 0.014$ ) and higher calcium \* phosphorous product at 6 months post- transplantation (HR = 0.950, 95% CI, 0.906 – 0.995;  $P = 0.032$ ) were associated with a lower risk of fracture.

**Conclusions:** The first 5 years after KT were associated with risks of peripheral skeleton fractures. Recipients' age, diabetes mellitus, induction therapy, and post-transplant calcium/phosphorus interaction may explain the risk. These results define the need of further studies to evaluate the reason for the fracture risks of KTRs.