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**The effects of lifestyle modification on fracture in kidney transplant recipients in South Korea : based on Korean National Health Insurance service data**

**Sung Mi Kim**, Wooseong Huh, Hojin Jeon, Kyungho Lee, Junseok Jeon, Hye Ryoung Jang, Jung Eun Lee, Yoongoo Kim  
Department of Internal Medicine-Nephrology, Samsung Medical Center, Korea, Republic of

**Objectives:** Although kidney transplantation (KT) improves numerical almost the whole renal functional aspects of kidney, renal osteodystrophy (ROD) as one of metabolic complications of chronic kidney disease often persists and leads to bone frailty and fractures. After Since minimization of immunosuppressants minimization and widespread prophylaxis of osteoporosis prophylaxis have prevailed since 2000's, we have to pay attention aimed to reveal other modifiable factors on affecting fractures.

**Methods:** We used retrospectively longitudinal database of Korean National Health Insurance Service (NHIS). We included KT recipients (n=10,083) who received health check-up from 2009 to 2016 were analyzed. Patients who were diagnosed with malignancy or occurred graft failure within one year after KT were excluded. We investigated significant factors on fractures among health related habits (smoke, drink, physical activity, obesity) and comorbidities (diabetes, hypertension, dyslipidemia, heart failure, cardiovascular disease, etc.).

**Results:** After adjusting for all variables, female, age over 65 years, and diabetes mellitus (DM) were associated with increased risk of fractures. Physical activity was protective for both vertebral (HR 0.696, 95% CI 0.53-0.91) and hip fractures (HR 0.638, 95% CI 0.42-0.98). In subgroup analysis, physical activity is was beneficial for vertebral fracture in female (HR 0.664, 95% CI 0.46-0.96) and especially for patients aged under 64 years (hip fracture [HR 0.722, 95% CI 0.53-0.99], vertebral fracture [HR 0.556 95% CI 0.32-0.96]). Diabetes DM mellitus was the common risk factor for fractures regardless of sex and age. When stratifying according to waist circumferences (WC), uppermost level of WC increased vertebral fractures (HR 2.703, 95% CI 1.38-5.29).

**Conclusions:** Traditional non-modifiable risk factors of fracture in the general population such as female sex, older age, and diabetes mellitus DM maintained significance in KT recipients. Physical activity and abdominal obesity were identified as modifiable and feasible factors for reducing preventing fractures of in KT recipients at individual level.

Risk factors of fractures in KT recipients stratified by sex and age