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The comparison of fracture risk between kidney transplant recipient and patients remaining waiting-list with dialysis: A propensity-score matched analysis

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Objectives: Despite kidney transplantation (KT) has benefit of quality of life compared to dialysis, it is inconclusive whether KT lowers the risk of fracture risk compared to maintaining dialysis.

Methods: We compared 504 patients who had undergone KT between 1998 and 2019 (KT group) and 423 patients who registered on the waiting-list for KT (WT group) at Ulsan University Hospital (UUH). The incident fracture was defined by administration data using the diagnosis code in UUH Clinical Data Warehouse (uICE). Nearest neighbor 1:1 matched analysis was performed between the groups. The primary outcome was incidence of fracture and the secondary outcome was mortality.

Results: Incident fractures occurred in 43 patients (8.5%) during the mean follow-up period of 77.3 months in 504 patients with KT, and in 53 patients (12.5%) on the waiting list ($p = 0.047$). The 16 patients in KT group and 52 patients in WT group died (3.2% vs. 12.3%, $p < 0.001$) in follow-up periods. Among WT group, the patients with incident fracture were older (58.8 ± 7.6 vs. 53.6 ± 10.0 years, $p < 0.001$) than the patients without fracture, with smaller proportion of men (47.2% vs. 59.5%, $p = 0.090$). Crude mortality rate and fracture rate before matched analysis were significantly higher in WT group. However, age, sex matched analysis showed that the incidence of fracture was comparable between the two groups (11.3% in WT group vs. 8.3% in KT group, $p = 0.169$), while the mortality was still higher in WT group (10.5% vs. 3.6% in KT group, $p < 0.001$).

Conclusions: In propensity-score matched analysis, there was no significant difference in fracture rate between KT and WT group. Further investigation is needed to adjust unmeasured confounding such as dialysis duration.