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Risk of active tuberculosis infection in kidney transplantation recipients: a nationwide cohort study with matched controls

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Objectives: Although the risk of *mycobacterium tuberculosis* (TB) infection is high in both kidney transplantation (KT) recipients and dialysis patients, a large-scale evidence comparing the risk between the two groups in a nation with moderate or higher TB prevalence was rare.

Methods: We performed a nationwide retrospective cohort study based on the claims database of South Korea where moderate TB prevalence is reported. We included incident KT recipients from 2011 to 2015 and compared their active-TB risks with matched controls. The general population control group was extracted as a 1:1 match for age, sex, and era, while the dialysis control group for age, sex, era, underlying hypertension, and diabetes. We excluded the matched pairs with age < 20 years old, a previous TB history, and those matched to a multi-organ transplantation. The incident active-TB outcome was assessed by the multivariable Cox regression analysis.

Results: The number of matched 7,462 subjects (total 22,386) were included to each of the study group. Their mean age was 47.3 ± 10.5 years and 60.6% were male. During median 3.57 of follow-up duration, the incidence rate for active-TB was 3.92/1,000, 4.38/1,000, and 0.67/1,000 person-years in the KT, dialysis, and general population groups, respectively. The KT group showed a significantly higher risk of active-TB than the general population group [adjusted HR 3.39 (1.88-6.12)]. However, the risk of active-TB was similar between the KT group and the dialysis group [adjusted HR 0.98 (0.73-1.31)].

Conclusions: In this nation with moderate TB prevalence and active surveillance strategies, KT patients may not have to burden additional risk of active-TB when compared to dialysis patients. Still, clinical attention for the infectious complication should not be overlooked in end-stage kidney disease patients, considering their overall higher risk of active-TB than that of general population.

Figure 1. Active-TB risk in the study population.