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Session Title : Tuberculosis in Solid Organ Transplant

Active tuberculosis in KT Korean big data analysis

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Kidney transplantation (KT) is the leading kidney replacement therapy for patients with end-stage kidney disease (ESKD). There is firm evidence that KT benefits the prognosis and quality of life of ESKD patients, and the prognosis of KT has improved. However, unresolved post-transplant complications remain, including metabolic disorders, malignant diseases, infectious diseases, or rejection, which are threatening the survival of allografts and recipients. As KT requires long-term immunosuppression, the infectious risk or reactivation of *Mycobacterium tuberculosis* (TB), one of the top ten causes of global deaths, increases after KT. TB after KT is associated with greater risks of allograft failure and post-transplant deaths, which has been reported in mainly Western countries. Thus, active TB after KT is considered an important infectious complication in KT recipients. Current guidelines recommend routine screening for TB in potential recipients, and complete treatment or prophylactic measures are necessary according to the patient's condition. However, the risk of active TB in KT patients has been scarcely reported in a nation with a higher than moderate TB prevalence, where the information would be particularly useful. As TB infection is endemic in certain nations with an increasing prevalence of chronic kidney disease, a nationwide study investigating TB risks in KT patients in a country with moderate-to-high TB prevalence is warranted. In addition, although it is evident that the incidence of active-TB infection in KT recipients is higher than that reported in the general population, large-scale studies comparing active-TB incidence between KT recipients and matched normal control or dialysis patients are rare. Previous studies demonstrated that impaired kidney function itself, even from acute kidney injury or pre-dialysis chronic kidney disease, is possibly related to immunologic dysfunction, which leads to a higher risk of active TB in the population. As immune dysfunction and related infectious complications are important in dialysis patients,²⁰ comparing the risk of active TB between KT recipients receiving immunosuppressants and dialysis patients with similar matched characteristics is warranted. Furthermore, knowing whether active-TB infection risk is elevated or not after KT and whether post-KT active-TB affects the graft and the patient outcome would provide important information regarding the decision of receiving KT in ESKD patients. In this study, we aimed to evaluate the risk of active TB in KT recipients, compared to a matched general population group and a matched control group including dialysis patients, in a nationwide KT

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cohort in South Korea, which has a reported moderate TB prevalence. We hypothesized that the incidence or risk factors of active TB in KT recipients would be different from those in the matched normal and dialysis controls. We further assessed the association between post-transplant active TB and the prognosis of KT recipients. This is a nationwide retrospective cohort study based on the claims database of South Korea where a moderate prevalence of TB is reported. We included incident KT recipients from 2011 to 2015 and compared their active-TB risks with 1:1 matched dialysis and general population control groups, respectively. The risk of incident active TB was assessed by multivariable Cox regression. Within the KT group, associations between active TB and post-transplant death or death-censored graft failure were investigated. The number of matched subjects included in each of the study groups was 7,462. The KT group showed a significantly higher risk of active TB than the general population group (HR 3.39 [1.88-6.12]), whereas it showed a similar risk to that of the dialysis group (HR 0.98 [0.73-1.31]). In KT patients, active TB was a significant risk factor for both deaths (HR 2.24 [1.19-4.42]) and death-censored graft failure (HR 2.21 [1.36-3.58]). In Korea, KT patients may not have to burden with the additional risk of active TB when compared to dialysis patients. However, active TB should not be overlooked as it is associated with a worse prognosis in post-transplant patients.