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Incident cancer after kidney transplantation in South Korea: a nationwide-population based study

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Objectives: Cancer is one of the most common cause of death with functioning graft in KT patients. In this study, we aimed to investigate post-KT cancer incidence using a nationwide data compared with end-stage renal disease (ESRD) control and general population (GP).

Methods: We included incident KT recipients aged over 20 years without previous cancer history using a Nationwide Health Insurance Database of South Korea from January 1, 2007, to December 31, 2015. We analyzed the incidence rate (IR) per 1000 patient-year of cancer in KT recipients compared with ESRD and GP cohorts which were extracted after matching by age, sex, and inclusion year.

Results: A total of 10,203 KT recipients were analyzed with matched ESRD and GP controls. Their mean age was 45.2 ± 10.7 years, and 60.3% were men. Economic status of KT recipients was lower than GP but better than ESRD control. Combined diabetes or hypertension of KT recipients was similar to ESRD control but higher than GP. Incident cancer IR in KT recipients (8.63) was higher than that of GP (5.28), but lower than ESRD controls (12.27). In overall, KT recipients had 65.3% higher risk of incident cancer, whereas ESRD patients were at 2.4-fold higher risk of cancer development than GP. Among various cancer types, KT recipients showed higher risk of uterus/ovarian cancer (HR 2.91, 95% CI 1.05-8.07), kidney cancer (HR 4.86, 95% CI 2.53-9.33), and non-Hodgkin lymphoma (HR 3.62, 95% CI 1.66-7.94), whereas ESRD patients revealed higher risk of colorectal, liver, uterus/ovarian, kidney, breast, and leukemia compared with GP.

Conclusions: In this study, we found that KT recipients had higher risk of incident cancer than GP, although this did not exceed that of ESRD patients. It is suggested that KT recipients should be monitored on the occurrence of gynecological malignancies, kidney cancer and non-Hodgkin lymphoma more meticulously than GP.