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Conversion from calcineurin inhibitor to sirolimus in kidney transplantation recipients with malignancy

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Objectives : Kidney transplant recipients are at an increased risk of malignancy for various reasons, such as the chronic use of calcineurin inhibitor (CNI). Sirolimus (SRL), an inhibitor of mammalian target of rapamycin (mTOR), has been known to reduce the risk of posttransplant malignancies and can be an alternative to standard immunosuppression for patients diagnosed with cancer after transplantation. The aim of this study is to evaluate the safety of the conversion from CNI to SRL after diagnosis of malignancy in kidney transplant recipients in a single medical center.

Methods : A total of 106 kidney transplant recipients who were diagnosed with malignancy after kidney transplantation between Jan 2006 and Jan 2016 in a single center were included in this retrospective analysis. We included all malignancies, such as posttransplant lymphoproliferative disease, and skin and non-skin malignancies, except thyroid cancer. The primary endpoint of this study was graft survival after conversion from CNI to SRL, and secondary endpoints were overall survival (OS) and cancer recurrence.

Results : Forty five patients (42%) changed their CNI-based regimen or CNI minimization regimen to SRL (SRL group) after their cancer diagnosis, and the rest of the patients (58%) maintained their conventional CNI-based therapy (CNI group, n=61). The most frequent malignancy was kidney cancer (36.8%), followed by GI origin cancer (20.8%) and skin cancer (11.3%). The average time of development of a cancer was 88.4 months in the SRL group and 89.6 months in the CNI group (p=0.924). Recurrence of cancer occurred in 4 (9%) patients in the SRL group and in 9 (14.8%) patients in the CNI group (p=0.392). Mean graft survival was 257.4 months in the SRL group [95% CI (Confidential Interval), 240.5–274] and 251.3 months in the CNI group (95% CI, 227.3–257.3). OS was 239.5 months (95% CI, 215.1–263.9) in the SRL group and 255.9 months in the CNI group (95% CI, 233.8–278.1). The graft survival of patients with only non-skin malignancies did not differ between the SRL group and the CNI group: 254.1 months in the SRL group and 250.3 months in the CNI group (p=0.524).

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Conclusions : The conversion to sirolimus after diagnosis of posttransplant malignancies does not affect graft survival or overall survival. Although there was no significant difference, the recurrence of cancer was less in the SRL group than in the CNI group.

Keywords : Kidney transplantation, cancer, mTOR inhibitor, calcineurin inhibitor