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**Impact of Pre-transplant Body Mass Index on Post-transplant Malignancy
after Kidney Transplantation**

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Objectives: As reported by the Centers for Disease Control and Prevention, obesity is associated with an increase in the incidence of 13 types of cancer in the general population. Many studies have shown that the incidence of posttransplant malignancy (PTM) after kidney transplantation (KT) is higher than that of general population. There have been several reports of pre-transplant body mass index (BMI) related to clinical outcome after KT, but its association with PTM is unknown. We evaluated the impact of pre-transplant BMI on PTM.

Methods: Using the Health Insurance Review and Assessment Service claims databases, National Health Insurance claims data, we collected data on patients who underwent kidney transplantation from January 2009 to December 2016 and their BMI data within 2 years before KT. Cancer incidence was analyzed using the National Cancer Registry (NCR). Pre-transplant BMI of the patients was categorized as underweight (BMI < 23), normal (BMI 23 to 24.9) (reference) and obesity (BMI ≥ 25). We assessed cancer incidence between the three groups and performed Cox regression analyses to determine whether the pre-transplant BMI is associated with the incidence of PTM.

Results: We analyzed 2,711 patients with BMI within 2 years before KT. The mean follow-up period was 4.4 person-years. The cancer cumulative incidence was 96 cases (3.5%). Underweight or obesity was not a significant risk for cancer incidence [hazard ratio (HR) 1.28, 95% CI 0.77-2.12, p=0.35; HR 1.31, 95% CI 0.73-2.35, p=0.37] compared with normal group. The risk of death in kidney transplant patients was also not associated with BMI.

Conclusions: Pre-transplant BMI in KT recipients did not have a significant effect on the incidence of PTM.