

Abstract Submission No.: A-0738

Long-Term Renal Prognosis In Urologic Cancer Patients After Nephrectomy

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Objectives : Recent advances in medical technology have contributed to improved survival rates among cancer patients. Long-term outcomes are important for cancer survivors, with renal function playing a significant role in determining these outcomes. We investigate the long-term renal functions in patients with urology cancers following surgery.

Methods : We analyzed the medical records of patients with kidney, ureter, and bladder cancers who underwent surgery without receiving chemotherapy at Korea university Anam and Guro Hospital from November 1999 to February 2019.

Results : Out of the total 1661 patients, 356 (21.4%) and 396 (23.8%) patients underwent partial nephrectomy (PN) and radical nephrectomy (RN), respectively. The average eGFR was 80.1 ± 21.9 , 88.7 ± 19.4 , and 82.5 ± 18.6 mL/min/1.73m² in groups with RN, PN, and non-nephrectomy (NN), respectively. There was an average annual decrease of 4.4 ± 17.3 mL/min/1.73m² in eGFR in patients who did not undergo nephrectomy (NN) adjusted by multiple factors. PN group exhibited a greater decline in eGFR compared to the NN (5.5 ± 11.2 mL/min/1.73m², $P=0.010$). Furthermore, there was a greater decrease in eGFR in the RN group compared to the PN group (8.3 ± 31.9 mL/min/1.73m², $P=0.024$). The risk of a 20% and 30% decline in eGFR showed no significant difference between NN and PN group (RR, 0.69, 95% CI, 0.45-1.07; RR, 0.72, 95% CI, 0.40-1.29). However, there was a significant increase in the risk of a 20% eGFR decline in the RN group compared to NN group (RR, 1.58, 95% CI, 1.09-2.29, $P=0.015$). RN group was associated with 2.0-fold risk increase of 30% eGFR decline adjusted by multiple factors (95% CI, 1.24-3.25, $P=0.005$).

Conclusions : The long-term renal outcome was significant worse in patients underwent RN. The annual decline in eGFR was significantly different among patients who underwent PN, RN, and those who did not undergo nephrectomy. Preserving renal tissue is crucial for determining renal prognosis when undergoing nephrectomy.

Fig1.jpg

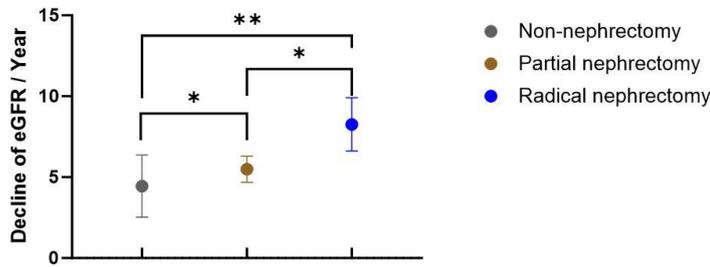


Figure 1. The average annual decrease in eGFR (mL/min/1.73m²) by surgery type.

Adjusted by age, sex, baseline estimated glomerular filtration rate, body mass index, hemoglobin, white blood cell count, platelet count, serum potassium, serum chloride, serum albumin, total cholesterol, C-reactive protein, hypertension, diabetes mellitus, coronary artery disease and proteinuria.

*p < 0.05 **p < 0.01

Fig1.jpg

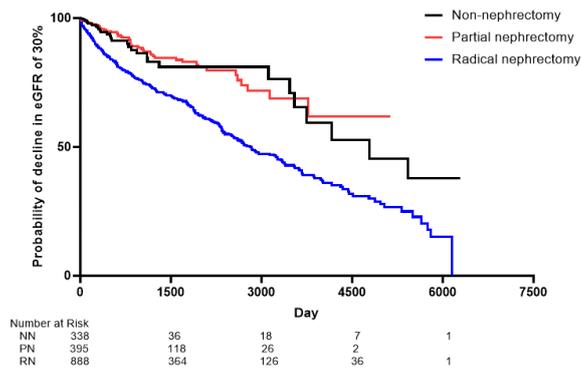


Figure 2. Kaplan-Meier curves for decline in eGFR of 30% by surgery type.