

## **Results of a National Population-Based Study of Outcomes of Surgery for Renal Tumours Associated with Inferior Vena Cava Thrombus**

**Introduction and Objective:** In several major surgical procedures, an association with provider volume and outcomes has been seen, justifying a centralization of these procedures. Radical nephrectomy with removal of inferior vena cava (IVC) thrombus is a rare, but large and complex operation in urology. Using Canada-wide population based data, we determined to assess whether surgeon or hospital volume had an effect on in-hospital mortality or complications.

**Materials and Methods:** The Canadian Institute for Health Information(CIHI) administrative codes were used to identify all nephrectomies associated with an IVC thrombus performed in 9/10 provinces from 1998-2007. The CIHI discharge abstract database was used to determine in hospital mortality and complications for the hospital admission at time of surgery. Multivariate logistic regression analysis (MVA) was performed to assess the impact of surgeon and hospital volume on in-hospital mortality and complications, adjusting for age, sex, co-morbidity (using modified Charlson score), year of surgery, and region.

**Results:** During the study period, 816 radical nephrectomies associated with venous thrombus were performed on 521 men and 295 women. The in-hospital mortality rate was 7%. Median length of stay was 10 days. Complications were noted in 633 patients (78%). Fifty-eight cases had cardiac bypass associated cases, and these had significantly higher in-hospital mortality (16%,  $p=0.01$ ) and complications (93%,  $p=0.001$ ). Age, co-morbidity and use of cardiac bypass were the strongest predictors of in hospital mortality on MVA. MVA showed a non-significant trend to lower in-hospital mortality with higher surgeon and hospital volume. The effect of hospital and surgeon volume on all and surgical specific complications was mixed.

**Conclusion:** Radical nephrectomy with associated IVC thrombus is a rare and complex urologic procedure with significant complications and mortality. Age, co-morbidities and cardiac associated cases were the strongest predictors of early outcomes, while surgeon and hospital volume were not significant predictors.