

Adverse renal outcomes in subjects undergoing nephrectomy for renal tumors: a population-based analysis

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Background: There has been increasing interest in determining renal outcomes after nephrectomy for renal tumors. Previous studies have not assessed all relevant risk factors, including proteinuria.

Objective: We sought to determine the risk and predictors for the development of adverse renal outcomes in a population-based cohort of subjects undergoing partial or complete nephrectomy.

Design, Setting, and Participants: A large population-based data set was used to identify all subjects undergoing nephrectomy in Alberta, Canada, from 2002 to 2007 using administrative codes. Comorbid conditions were determined using validated algorithms, and baseline estimated glomerular filtration rate (eGFR) and proteinuria status were determined.

Measurements: Postsurgical outcomes of end-stage renal disease, acute dialysis, chronic kidney disease (CKD) (eGFR < 30 mL/min per 1.73 m²), and rapidly progressive CKD (eGFR < 60 mL/min per 1.73 m² and eGFR loss ≥ 4 mL/min per 1.73 m² per year) were assessed. The risk and risk factors for developing the composite renal outcome were determined using a multivariable Cox proportional hazards model. **Results and Limitations:** Of 1151 subjects, 10.5% developed an adverse renal outcome over a mean of 32 mo. Complete (vs. partial) nephrectomy was associated with a hazard ratio (HR) of 1.75 (95% confidence interval [CI], 1.02-2.99) for the primary outcome, as was lower baseline eGFR. Subjects with proteinuria were more likely to experience the primary outcome (42% vs. 9%), conferring an adjusted HR of 2.40 (95% CI, 1.47-3.88).

Conclusions: Clinically important adverse renal outcomes are common in patients undergoing nephrectomy for renal tumors. In addition to baseline eGFR and the extent of the renal mass removed, proteinuria is a strong independent risk factor. Assessment of proteinuria, in addition to other risk factors, should be performed to inform prognosis and the optimal treatment strategy.

Editorial Comment

The authors analyzed 1151 patient who underwent complete or partial nephrectomy. Surprisingly, they found that a significant proportion of subjects (10.5%) developed clinically relevant adverse renal outcomes within 2.7 years after nephrectomy. The most relevant information within this report is that in addition to the expected association of decreased baseline renal function, proteinuria at baseline was a strong independent risk factor, conferring more than a two-fold risk.

A good and simple clinical advise therefore is to check for proteinuria before the operation and if proven, to regard this as a significant prognostic factor for adverse renal outcome. Partial nephrectomy or nephron-sparing surgery should be strongly considered in these cases.

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