

DOES URINARY INCONTINENCE INCREASE THE RISK OF KIDNEY CANCER ? -- A NATION-WIDE POPULATION-BASED STUDY

Hypothesis / aims of study

A growing body of literature has established diabetes mellitus as a risk factor for urothelial cancer and renal cell carcinoma.¹ Besides, it has been well shown that patients with urinary calculi have higher risks of urothelial cancer and renal cell carcinoma.² Both the associations are much more prominent in females. While diabetes mellitus is known to possess a higher risk of urinary incontinence and our previous study found that patients with urinary incontinence are prone to have urinary calculi. It is interesting and also important to know whether there is a relevant association between urinary incontinence and kidney cancer in women.

Study design, materials and methods

We used data sourced from Longitudinal Health Insurance Database, which consists of one million randomly selected subjects from the National Health Insurance Research Database of Taiwan. Health Insurance System of Taiwan covers approximately 23 million people (98% of population). We identified 462 incident female patients pathologically diagnosed with kidney cancer (ICD-9-CM codes 189.0, 189.1, or 189.2) between January 2002 and December 2009. We assigned their first diagnosis of kidney cancer as the index date. A cohort of 2310 (5 for each subject with kidney cancer) age-matched female subjects without the diagnosis of kidney cancer were enrolled as the control group. Logistic regression was used to examine the risk of having previously been diagnosed with incontinence prior to the index date between cases and control. To increase the validity of urinary incontinence diagnoses, we only selected patients with urinary incontinence if they had received 2 or more urinary incontinence diagnoses (ICD-9-CM codes 625.6, 788.3) prior to the index date, with prescription of imipramine or antimuscarinic agents. Furthermore, the comorbidities, including hypertension (ICD-9-CM codes 401) and diabetes mellitus (ICD-9-CM codes 250, A181), were adjusted for in the regression models.

Results

Of the sampled patients, 101 (3.64 %) had previously been diagnosed with urinary incontinence; 22 cases (4.76 % of the patients with kidney cancer) and 79 controls (3.42 % of patients without kidney cancer). (Table 1) Both the crude and adjusted model of logistic regression showed that urinary incontinence was not a significant risk factor for kidney cancer. (Table 2)

Interpretation of results

As best as we are aware, no study has yet been conducted to evaluate the association between urinary incontinence and kidney cancer. Even though negative results were found in this study, it still provide some information when consultation with patients with kidney cancer.

Concluding message

The study did not identify the association between kidney cancer, including renal cell carcinoma and urothelial cancer, and patients with a previous diagnosis of urinary incontinence.

Table 1. Demographic characteristics of patients with kidney cancer and controls (n=2772)

Variable	Patients with kidney cancer (n=462)	Controls (n=2310)
Age (y/o)	68.5 ± 10.26	68.48 ± 10.26
Hypertension	246 (53.25%)	1064 (46.06%)
Diabetes mellitus	138 (29.87%)	557 (24.11%)

Table 2. Prevalence and odds ratios for urinary incontinence among the sampled patients

Presence of prior urinary incontinence	Controls (n=2310)	Patients with kidney cancer (n=462)
Yes	79 (3.42%)	22 (4.76%)
No	2231 (96.58%)	440 (95.24%)
Crude OR (95% CI)	1.00	1.41 (0.87-2.30)
Adjusted OR (95% CI)	1.00	1.35 (0.83-2.20)

References

1. Woolcott CG, Maskarinec G, Haiman CA, Henderson BE, Kolonel LN. Diabetes and urothelial cancer risk: The Multiethnic Cohort Study. *Cancer Epidemiol.* 2011 Dec;35(6):551-4
2. Chung SD, Liu SP, Lin HC. A population-based study on the association between urinary calculi and kidney cancer. *Can Urol Assoc J.* 2013 Nov;7(11-12):E716-21

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