

## What's new in renal cancer research?

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### The presence of diabetes or hypertension does not predict worsening of renal function following robot-assisted partial nephrectomy in patients with normal kidney function

Patients with renal masses often undergo partial nephrectomy (PN) to preserve kidney function without compromising cancer-specific outcomes. Because hypertension and diabetes are leading causes of chronic kidney disease, the Icahn School of Medicine at Mount Sinai sought to determine the influence of diabetes and hypertension on renal function outcomes of patients undergoing robot-assisted PN (RPN).<sup>1</sup> The analysis included patients who underwent RPN for a clinical stage less than T1b renal mass with normal baseline kidney function (estimated glomerular filtration rate [eGFR] higher than 60 mL/min/1.73 m<sup>2</sup>) and a followup of more than two weeks. Patients were categorized according to their eGFR (higher than 90 mL/min/1.73 m<sup>2</sup> vs. higher than 60 mL/min/1.73 m<sup>2</sup>) and the presence or absence of diabetes or hypertension; 57.86% of patients with a baseline eGFR of 90 or higher and 61.11% of patients with a baseline eGFR of 60 or higher had diabetes or hypertension. No differences in eGFR, renal function recovery profile over time, or chronic kidney disease (CKD) stage were observed in either group following RPN. The percentage of subjects upgraded to CKD stage 3 or higher did not differ between those with and without hypertension or diabetes, regardless of whether their baseline eGFR was higher than 90 mL/min/1.73 m<sup>2</sup> or higher than 60 mL/min/1.73 m<sup>2</sup>. These data suggest that neither diabetes nor hypertension is an independent predictor of renal function outcomes in patients with normal renal function undergoing RPN. However, it was pointed out during the poster presentation that a potential bias was introduced by grouping together patients with uncontrolled hypertension and those with hypertension controlled by medication, which could potentially have a protective effect on renal function.

### MicroRNAs may offer potential biomarkers of renal cell carcinoma

A group of Italian investigators examined the deregulation of microRNAs (miRs) in the peritumoural region of 100 patients with renal cell carcinoma (RCC), using 30 kidney donors as a control population.<sup>2</sup> miRs are short, non-coding RNA molecules involved in cell homeostasis and their deregulation has been linked to pathogenesis and clinical outcome in several diseases, including cancer, diabetes, and cardiovascular diseases.

miR profiling of normal tissue identified overexpression of 18 miRs in patients with RCC and downregulation of 36 miRs in the control kidney donors ( $p < 0.05$ ). Lower expression of hsa-miR-513b was found in the normal tissue of patients with RCC ( $p < 0.0001$ ). These preliminary data suggest that miR-513b may act as an oncosuppressor and that its downregulation could represent a significant target in the mechanism of oncogenesis. Further studies are needed to identify potential targets of miR-513b and the molecular path involved in this process.

### Optimal timing of chest imaging and bone scans before surgical treatment of kidney cancer

A group of investigators at the Urological Research Institute in Milan presented results of two studies using a prospectively collected institutional database to predict the risk of pulmonary metastasis on chest computed tomography (CCT) scan<sup>3</sup> and the risk of a positive bone scan<sup>4</sup> in patients with RCC. The goal of both studies was to provide objective criteria for patient selection to undergo these imaging procedures.

Among 1946 patients surgically treated for RCC, 6% had a positive CCT scan. Preoperative characteristics that were positively associated with a positive CCT scan included preoperative hemoglobin/platelet ratio (OR 1.04; 95% CI 1.02–1.06;  $p < 0.0001$ ); clinical tumour stage (cT) 1b (OR 2.69; CI 1.16–6.22;  $p = 0.02$ ), cT2 (OR 9.13; CI 4.13–20.18;  $p < 0.0001$ ), and cT3–cT4 (OR 15.41; CI 6.73–35.25;  $p < 0.0001$ ); clinical nodal stage 1 (OR 3.21; CI 2.05–5.01;

$p < 0.0001$ ); and the presence of systemic symptoms (OR 3.88; CI 2.39–6.31;  $p < 0.0001$ ).

Among 2008 patients with RCC, bone scans were positive in 4%. Preoperative characteristics that were positively associated with a positive bone scan included preoperative hemoglobin/platelet ratio (OR 1.04; 95% CI 1.02–1.06;  $p < 0.0001$ ); cT2 (OR 2.13; CI 1.48–4.18;  $p = 0.02$ ); clinical nodal stage 1 (OR 2.5; CI 1.45–4.31;  $p = 0.001$ ); and the presence of systemic symptoms (OR 4.26; CI 2.41–7.5;  $p < 0.0001$ ).

Based on these results, the investigators fitted a multivariable logistic regression model to predict positive CCT or bone scan. They concluded that use of their proposed models makes it possible to estimate the risk of positive CCT or bone scan at kidney cancer staging using preoperative characteristics.

## References

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