

A urinary biomarker for ureteropelvic junction obstruction in children

Researchers in Egypt have shown that the level of endothelin-1 (ET-1) in voided urine provides a useful marker for ureteropelvic junction obstruction (UPJO), and could be used as a noninvasive tool for the diagnosis and long-term follow-up of children with this condition.

UPJO in children is usually diagnosed using radiologic investigations, with the major disadvantage of exposing the child to radiation, so the noninvasive nature of urinary biomarkers makes them an attractive alternative.

Taha and colleagues prospectively compared ET-1 levels in the urine of 35 children with unilateral UPJO with the corresponding levels in a control group of 30 children (10 with vesico-ureteral reflux, 10 with renal stones, and 10 healthy children). Urine samples were taken from the children with UPJO before undergoing pyeloplasty, during surgery, and at 1, 2, 3, 6, 9, and 12 months postoperatively.

The preoperative ET-1 level in the urine of children with UPJO was nearly fourfold higher than those in the control groups. Using a cut-off value of 3 fmol/mg creatinine, ET-1 had a diagnostic accuracy of 81.5%, a sensitivity of 74.3%, and a specificity of 90%. In children aged ≤ 1 year ($n=8$), the sensitivity and specificity were 100% using a cutoff value of 4 fmol/mg creatinine. In the patients with UPJO, ET-1 levels had decreased significantly 12 months after pyeloplasty, compared with the corresponding preoperative values.

Original article Taha MA *et al.* (2007) Diagnosis of ureteropelvic junction obstruction in children: role of endothelin-1 in voided urine. *Urology* **69**: 560–564

Percutaneous cryoablation with CT monitoring for the treatment of solid renal tumors

Percutaneous radiofrequency ablation, although a promising therapy for small, solid renal tumors, is less suitable for large tumors or masses adjacent to critical structures, such as the bowel, and the ablation cannot be monitored by CT imaging. Atwell *et al.* retrospectively investigated the use of percutaneous ultrasonographically guided cryoablation using CT monitoring, which allows visualization of the lethal ice ball.

Forty individuals were included, each with one renal tumor (mean diameter 3.4 ± 1.3 cm; 20 [50%] ≥ 3 cm), 19 (48%) of which extended into the renal sinus fat. Cryoablation was performed under general anesthesia. Each patient received one freeze-thaw-refreeze treatment cycle (mean duration of each freeze = 11 min) with monitoring of the ice ball using CT. Contrast-enhanced CT (or MRI if CT was contraindicated) was scheduled during, within 48 h, and at 3–6, 12, 18, 24 and 36 months after ablation. Extension of the ice ball 5 mm beyond the tumor margin during freezing and no contrast enhancement on imaging immediately after the procedure was deemed a successful treatment.

Cryoablation was successful in 38 (95%) patients, 29 (76%) of whom were followed for a mean duration of 8.0 ± 4.4 months. A 100% tumor control rate was achieved, with no local recurrences being identified. Two perinephric hemorrhages and one case of hypertension were reported, but only one adverse event was serious.

The authors conclude that cryoablation is safe and efficacious for small and large solid renal tumors in critical locations.

Original article Atwell TD *et al.* (2007) Percutaneous cryoablation of 40 solid renal tumors with US guidance and CT monitoring: initial experience. *Radiology* **243**: 276–283

Vitamin D might help to protect against prostate cancer

Poor vitamin D status and high prevalence of prostate cancer are more frequently seen among people living at high latitudes, among men of African descent, and among elderly people. This observation has led to the hypothesis of an association between low vitamin D levels, caused by little sun exposure, and prostate cancer risk.

In this study, the population comprised 1,066 men included in the Physicians' Health Study who developed prostate cancer during the period 1982–2000 and 1,618 age-matched controls. All participants had provided blood samples at study baseline, from which values for the vitamin D metabolites 25-hydroxyvitamin D₃ and 1,25-dihydroxyvitamin D₃ were obtained to assess vitamin D insufficiency and deficiency. Of participants whose blood samples were taken in winter or spring (25%), two-thirds had vitamin D