Take Home Messages

Following are summaries of the Take Home Messages delivered on the final day of this year’s AUA meeting. The purpose of these messages is to provide an overview of presentations on select topics. Abstract numbers are in parentheses (J Urol, suppl., 2018; 199: e1-e1250).

Kidney Cancer

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The Program Planning Committee for the 113th AUA Annual Meeting organized a thought-provoking scientific program. The Kidney Cancer program incorporated 1 video session, 8 podium sessions and 8 moderated poster sessions in addition to plenary sessions highlighting current controversies in kidney cancer. A total of 258 abstracts were presented.

Common themes discussed during the epidemiology and evaluation/staging sessions were renal biopsy, risk stratification and perioperative kidney function trends. In a review of preoperative trends in kidney function in a Veterans Affairs cohort, the preoperative trend was independently associated with postoperative chronic kidney disease following radical or partial nephrectomy when looking at 5 or more measurements in a 2-year period (MP28-15).

In a validation of a previously reported nomogram predicting the 12-year probability of metastatic renal cancer, the addition of a targeted sequencing panel of common genes mutated in clear cell renal cell carcinoma (RCC) helped improve risk prediction (MP56-09).

Sessions on surgical therapy for localized disease highlighted shifting practice patterns and risk based surveillance. Open, laparoscopic and robotic partial and radical nephrectomy practice patterns and the new standard of care were analyzed using a statewide database (PD16-03). More evidence was revealed that minimally invasive robotic approaches are being used more often for radical and partial nephrectomy. Patients are traveling less outside of their health service areas with the regional dissemination of robotic surgery.

In a prognostic evaluation of perinephric fat, renal sinus fat and renal venous invasion in pathologic stage T3a clear cell RCC, investigators reported their experience with patients undergoing radical nephrectomy during a 30-year period (PD16-12). Isolated extrarenal extension involving perinephric fat, renal sinus fat or a renal venous structure carried similar prognostic weight. The presence of multiple pT3a patterns of extrarenal extension was associated with worse oncologic outcomes.

The active surveillance for localized disease session featured current perspectives regarding surveillance of complex cystic masses. In an analysis of the management of genetically defined renal tumors using size based risk stratification, 3 cm represents a clinically meaningful threshold for deciding between active surveillance and surgical management in patients with von Hippel-Lindau, hereditary papillary renal carcinoma and Birt-Hogg-Dubé associated renal tumors.

Pediatrics

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Introduction

Pediatric urology was featured at AUA2018 in several venues. The Societies for Pediatric Urology (SPU) meeting included 78 podium presentations and 61 posters covering a variety of salient topics. This year, Health Services and Population Research was a separate section for the first time.

The SPU meeting also featured many notable special talks. The audience was particularly enthused by Dr. David Miller’s presentation on how quality improvement methodology developed in adult urology could apply to pediatrics. Prof. Philip Ransley’s perspective on the evolution of the field of pediatric urology, “Pediatric Urology Grows Up,” was also a highlight.

At the main AUA2018 meeting a full day of pediatric programming included a lively plenary session, 2 moderated poster sessions and viewing of surgical videos. Among other wonderful talks the plenary participants enjoyed a panel discussion about fertility preservation for pediatric oncology patients, a debate about regionalization of care for complex cases (eg bladder extrophy) and a lecture on cancer screening after the publication of the American Urological Association Evidence-Based Cancer Screening Guidelines (J Urol, suppl., 2018; 199: e1-e1250).
beta-lactamase agents highlights the need to identify alternate strategies to interrupt the infectious process. Several presentations focused on different aspects of host-bacterial interactions resulting in adherence (MP23-01, MP23-02, MP23-03).

The 2-step verification process required for type I pilus assembly was detailed in one presentation, demonstrating that successful disruption would block the attachment of uropathogenic Escherichia coli to urothelium (MP23-01) (fig. 1).

**Microbiome**

Many groups explored the characteristics of the urinary and/or fecal microbiome to gain insights into antibiotic resistance, CPPS/interstitial cystitis (IC) phenotyping, inflammatory conditions and neovaginal microflora in male to female transsexuals (MP15-09, MP15-10, MP15-12, MP23-10).

Performance of 16S rRNA amplicon sequencing performed on rectal swabs demonstrated an alteration in the fecal microbiome of patients with fluoroquinolone resistant E. coli organisms, with overgrowth of Enterobacteriaceae and a relative absence of Aeromonadaceae (MP15-12).

**Prophylactic Antibiotics for Prostate Biopsy**

The discussion regarding the best strategies for selecting prophylaxis for prostate biopsies to minimize infectious complications continued in this year’s sessions. One group reported on the use of next generation DNA sequencing to test rectal swabs for the purpose of tailoring the pre-biopsy antibiotic regimen (MP15-14). Infectious complications were avoided in 23 of 24 patients, with only a single patient having cystitis 3 weeks after biopsy.

While this strategy allows for complete coverage of all organisms, multiple agents including antifungals may be required to address all the generated sensitivities. Targeted antimicrobial prophylaxis has not been universally successful at eliminating septic events (MP15-15). In addition, 2 studies focused on the judicious use of local and hospital antibiograms to supplement empirical antibiotic selection (MP15-18, MP15-20).

**Hemorrhagic Cystitis**

Hemorrhagic cystitis related to radiation and chemotherapy has long been a source of patient morbidity. An elegant study demonstrated specific endothelial aberrations when exposing HUVEC (human umbilical vein endothelial cells) to radiation, namely significant decreases in cell proliferation and migratory capability, combined with an increased proportion of senescent cells (MP10-08) (figs. 2 and 3). Research along these lines bolsters future efforts to prevent functional consequences of radiation cystitis.

Another study highlighted a protein product of Schistosoma haematobium that may be more effective than Mesna in preventing acrolein related hemorrhagic cystitis (MP39-15). A single dose of H-IPSE acting by potentiating the anti-inflammatory effects of interleukin-4 was at least equivalent to 3 doses of Mesna.

**Urologic CPPS/UCPPS/IC Phenotyping**

The UCPPS/IC session focused on phenotyping of pain and interstitial cystitis subtypes to place patients in appropriate treatment groups and facilitate stratification noninvasively. Further work from the MAPP (Multidisciplinary Approach to the Study of Chronic Pelvic Pain) research group examined the characteristics of subjects with genital pain, noting that increasing sites and severity of pain co-localized with other pain syndromes (headache, myalgia), depression and poorer psychosocial/overall health (MP39-18).

There was considerable progress in the identification of Hunner’s ulcer subtypes with a combination of urinary biomarkers and pain scores. The ability to recognize these patients without inflicting additional discomfort will be of considerable value (MP39-11).

While not comprehensive, this summary features high quality and meaningful research relating to many other focus areas within urology. I look forward to seeing the progression next year in Chicago.
Conclusion

The results of this study provide evidence that a combination of microRNA and miRNA expression levels can serve as potential biomarkers for prostate cancer detection. Further research is needed to validate these findings and to understand the underlying mechanisms.

References


Abstract

Purpose: To evaluate the potential of using miRNA and microRNA expression levels as biomarkers for prostate cancer detection.

Methods: A cohort of 100 prostate cancer patients and 100 healthy individuals were included in the study. Serum samples were collected and miRNA and microRNA expression levels were measured using qRT-PCR.

Results: Higher expression levels of miRNA-125b and microRNA-155 were observed in prostate cancer patients compared to healthy controls. The area under the ROC curve for miRNA-125b was 0.85 and for microRNA-155 was 0.78.

Conclusion: miRNA-125b and microRNA-155 expression levels can serve as potential biomarkers for prostate cancer detection. Further studies are needed to validate these findings.

Keywords: miRNA, microRNA, prostate cancer, biomarker, qRT-PCR.