

# Recent Advances in Adult and Pediatric Urology.

Puneet Sindhvani MD, MS, MSBS, MBBS

Associate Professor Urology, OUHSC

Adjunct Associate Professor Radiation Oncology,  
OUHSC

Director, Renal Transplantation OTC

Section Chief, Male Andrology and Infertility, OUHSC

Chief of Urology, VAMC

# Advances in Infertility

- ▶ WHO revisions in “normal” sperm parameters (Time to Pregnancy <12 months):
  - semen volume = 1.5 ml (1.4–1.7)
  - total sperm number = 39 million per ejaculate (33–46)
  - Sperm concentration = 15 million per ml (12–16)
  - Vitality = 58% live (55–63)
  - Total motility = 40% (38–42)
    - progressive motility = 32% (31–34)
  - morphologically normal forms = 4.0% (3.0–4.0)

# Emerging Androgen Abuse & infertility

- ▶ Increasing anabolic androgenic steroid abuse\*
  - 3 million men in USA – athletes, bodybuilders
  - Free access due to internet, health food stores.
  - 3 categories of compounds.
- ▶ Testosterone analogues:
  - Testosterone – esters, Methyltestosterone, Boldenone
  - androgenic: anabolic effect is 1:1
  - Aromatization to estradiol in periphery – salt water retention, Gynecomastia.
  - Shutting down HPG

\*BJU June, 2011

# Emerging Androgen Abuse & infertility

- ▶ Di-Hydro-Testosterone (DHT) analogues:
  - Stanozolol, Oxandrolone, Oxymetholone
  - Active intracellular form of T , 5 alpha reductase
  - More androgenic, not converted to Estradiol
- ▶ Nandrolone analogues:
  - Nandrolone decanoate/ phenylpropionate, Trenbolone,
  - Anabolic >> Androgenic
  - Some progesterone effects, inhibits HPG axis.

# Emerging Androgen Abuse & infertility

- ▶ “Stacking” – compounds with similar effects.
- ▶ “cycling” – Mass gain, definition,
- ▶ “spiking” – Antiestrogens, HCG, HGH, IGF
- ▶ Hypogonadotropic hypogonadism.
  - Decreased intratesticular testosterone
  - Apoptosis of spermatogenic cells.
- ▶ Reversible in 1 year in 90% men.
- ▶ Prolonged (> 5 yrs) or no recovery in 10%.

# Emerging Androgen Abuse & infertility

- ▶ Presentation:
  - Azoospermia, severe oligospermia, low LH FSH.
- ▶ Treatment:
  - Cessation of exogenous supplements:
    - ED, Decreased Libido, dysphoria, depression
  - HCG / HMG / FSH
  - May need aromatase inhibitors.

# Male Sexual Health

- ▶ ADAM – androgen deficiency in aging male.
  - Declining Testosterone levels after age 40 yrs.
  - S/S: diminished sense of well being, libido, fatigue, ED, Metabolic syndrome, Sarcopenia, decreased bone density.
- ▶ Primary or secondary:
  - Testicular failure: Klinefelter's, UDT, Varicocele
  - Hypogonadotropic: Pituitary adenoma, narcotics, Hemochromatosis

# Male Sexual Health

- ▶ **Diagnosis:**
  - AM testosterone levels, LH, Repeat Free and total T
  - Range of normal 300–1000 ng/dl
  - If low LH and low T – Prolactin, MRI brain
- ▶ **T/T choices: Injectable, pellets, topical, patches, Oral – not recommended.**
  - Special agents – HCG, Clomiphene
- ▶ **Secondary exposure to kids and females.**
- ▶ **F/U: 3 months, IPSS, DRE, PSA, CBC, CMP, OSAS**

# Renal diseases

## ▶ Kidney Cancer –

- Hepatitis C increases risk for RCC\*.
- Nephron sparing surgery for small tumors should be performed when feasible.
- Immunotherapy with Tyrosine kinase inhibitors – Sunitinib, sorafenib improves PFS by 3–6 months.
- Everolimus – for failures of TKI – improves PFS by 2–7 months.

– \*Cancer Epidemiology, biomarkers and prevention. July 2011

# Kidney diseases

- ▶ Nephrolithiasis:
  - Incidence is increasing in adults and children
  - Increase in dietary protein, salt and BMI
  - Dehydration, hypocitraturia are correctable factors.
  - Medical expulsive therapy for small (<5 mm) ureteral stones is an option for treatment.
  - In children Hypercalciuria is the commonest risk factor.

# Prostate diseases

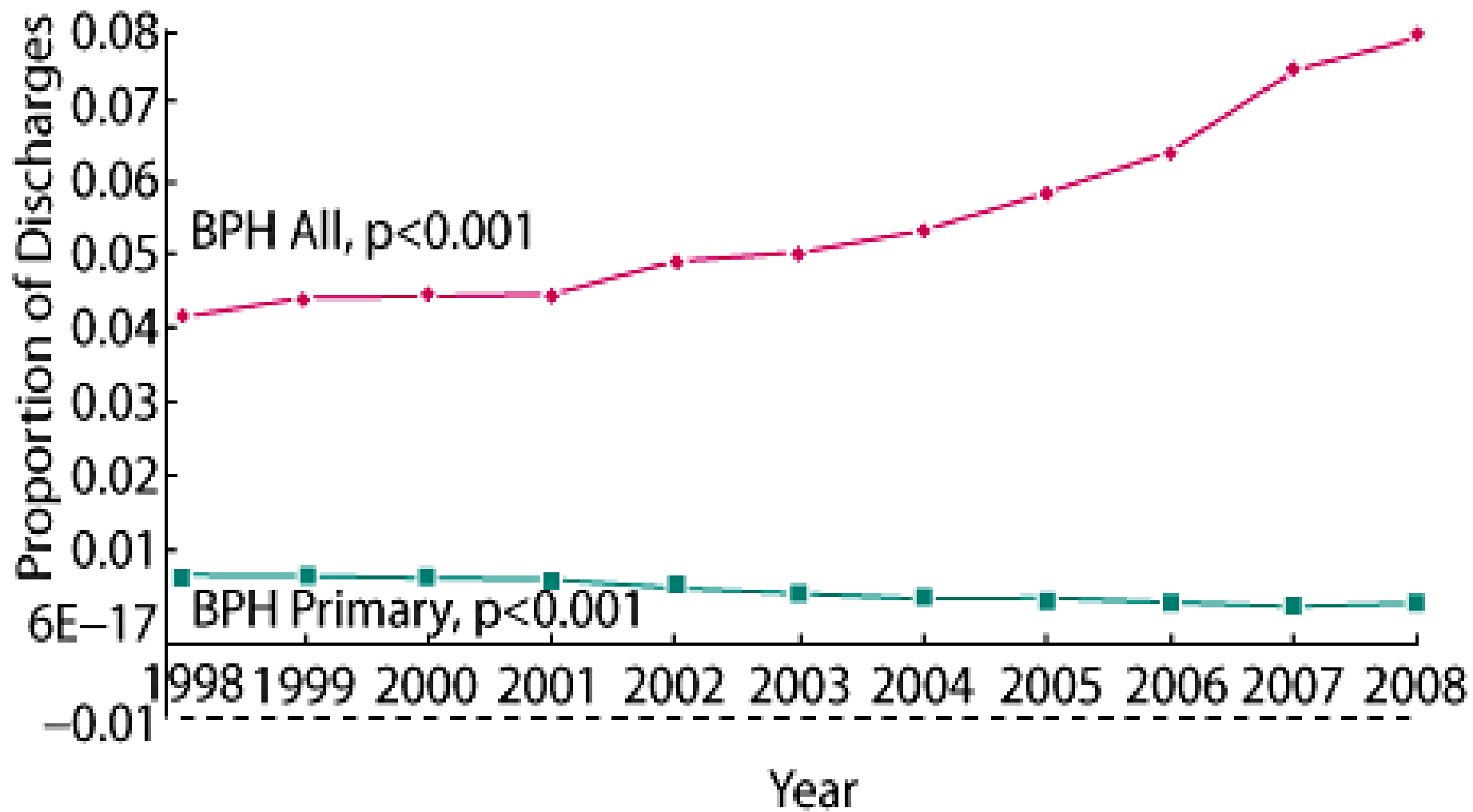
- ▶ Smoking increases risk of prostate cancer recurrence and death.(JAMA, June 2011)
  - Current smokers had increased risk of biochemical recurrence (HR, 1.61; 95% CI, 1.16–2.22)
  - total mortality (HR, 2.28; 95% CI, 1.87–2.80)
  - CVD mortality (HR, 2.13; 95% CI, 1.39–3.26).
- ▶ Coffee and prostate cancer: (JNCI July 2011)
  - Men who consumed 6 or more cups per day had lower adjusted relative risk for overall prostate cancer compared with nondrinkers.

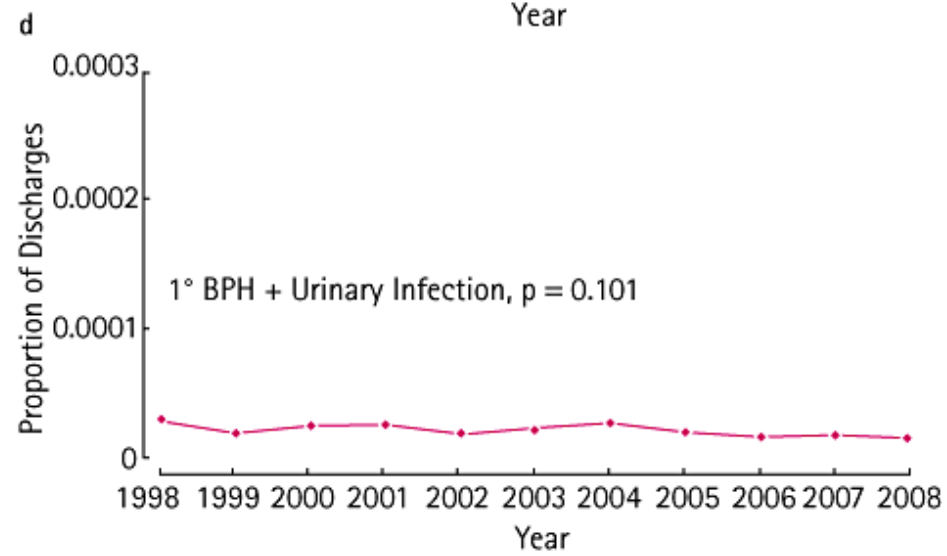
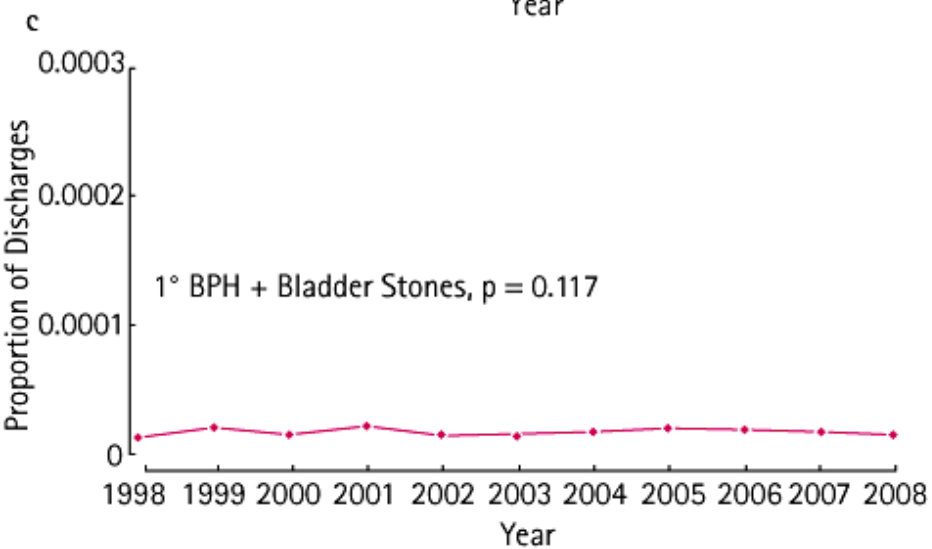
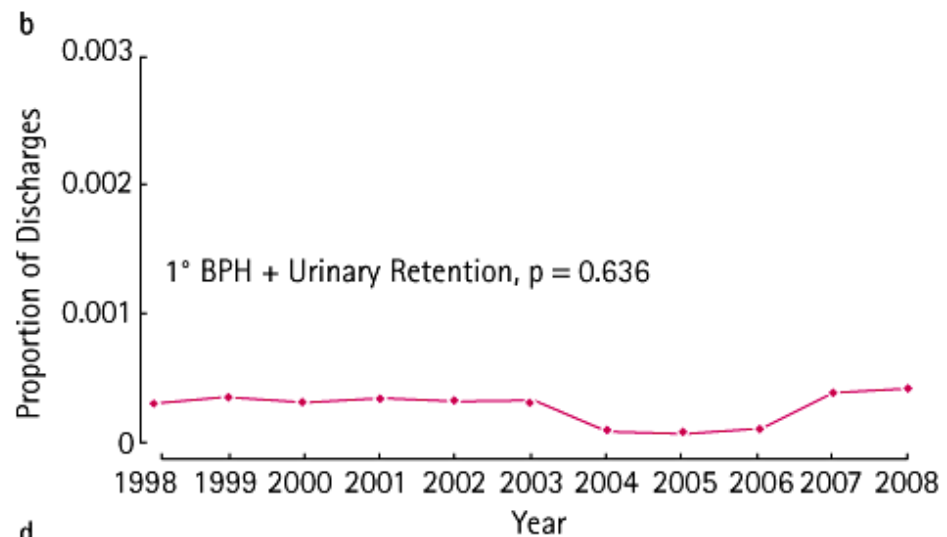
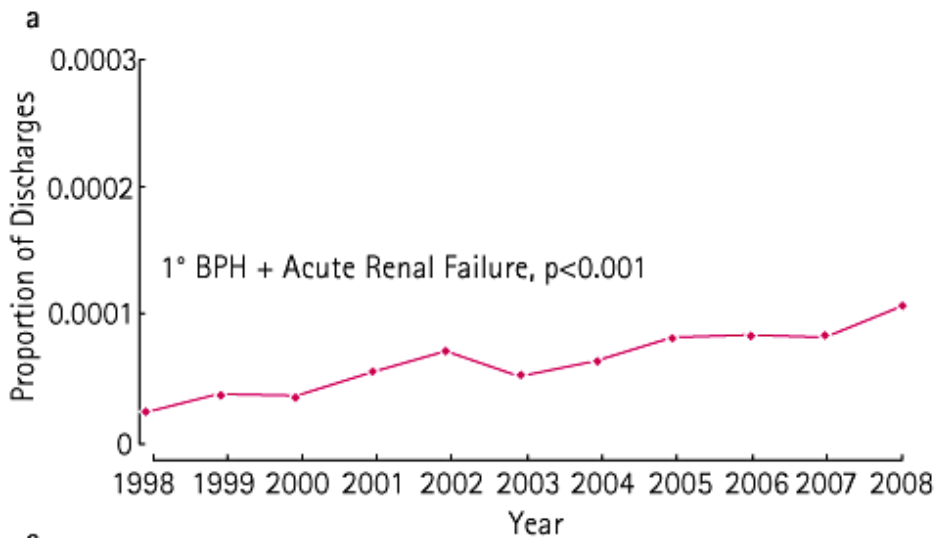
# Prostate diseases

- ▶ Chemoprevention with finasteride, dutasteride – controversies
  - 25% risk reduction in incidence of prostate cancer.
  - Increase in high risk cancer from 18 to 21 /1000 men treated.
  - Sampling error due to 20% volume reduction.
  - FDA – no approval for prevention.
- ▶ Androgen deprivation is associated with increased risk of cardiac events and metabolic syndrome.
  - Pts with preexisting CAD – higher mortality.

# BPH

- ▶ Trends in BPH 1998 – 2008 in USA (BJU June 2011).
  - Increased use of oral agents for BPH.
  - Discharges for BPH surgery decreased, 51% (odds ratio [OR] 0.49, 95% confidence interval [CI] 0.45–0.54,  $P$ -trend < 0.001) over time.
  - Discharges for primary BPH with acute renal failure increased > 400% (OR 4.28, 95% CI 3.22–5.71,  $P$ -trend < 0.001).



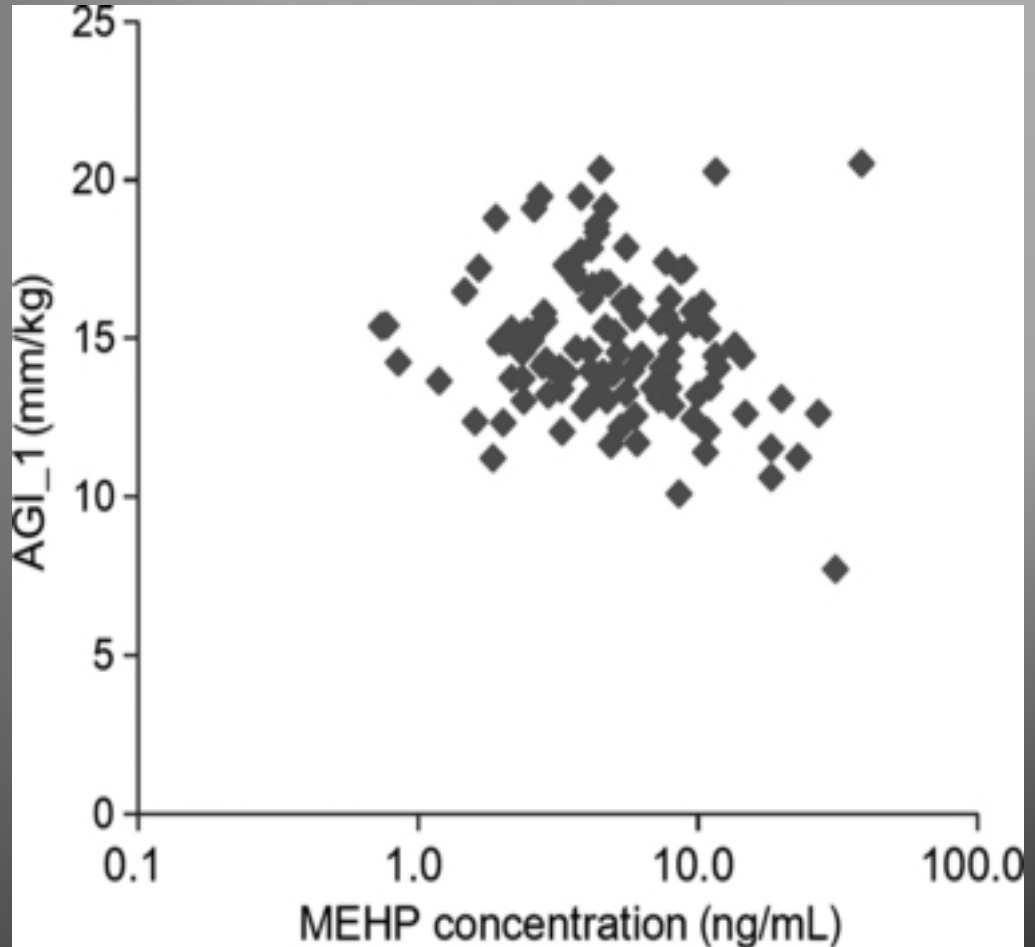


# BPH

- ▶ Treatment with medical therapy:
  - compliance is low, bothersome side effects reported by up to 1 in 3 patients.
  - In office laser prostatectomy is less expensive, safe and provides immediate relief from obstructive symptoms of BPH.
- ▶ Experimental therapy phase therapy:
  - Intra-prostatic injection of apoptotic agents.

# Pediatric Urology

- ▶ Fetal exposure to phthalate esters (plasticizers) decreased the Anogenital Index (measure of masculinization).
- ▶ A statistically significant negative relationship was found between the maternal urinary concentration of MEHP and AGI 1 ( $r = -0.189$ ,  $p = 0.047$ )



# Pediatric Urology

- ▶ Routine antibiotic prophylaxis is not needed in patients with UPJO and hydronephrosis, due to low incidence of infections. (Ped Neph July 11).
- ▶ In endemic areas for AIDS, male circumcision reduces the rate of HIV transmission. (Curr. Op. Urol. 20:4).
- ▶ Patients with micropenis, short penis, dysmorphophobia – penile extenders was only evidence based effective treatment. (BJUI 2010:108)

# Antibiotic prophylaxis in reflux

- ▶ AUA panel “recommends” continuous prophylaxis for children younger than 1 year with a history of VUR and febrile UTI, or with prenatally detected grades 3 to 5.
- ▶ Prophylaxis is an “option” in children younger than 1 year with grades 1 or 2.
- ▶ Prophylaxis is “recommended” in older children with dysfunctional voiding and VUR, while it is an “option” to start prophylaxis in older children without voiding dysfunction.
- ▶ Observation and prompt treatment of infection is an “option” in older children without voiding dysfunction or renal cortical abnormalities.