

## RAP #3, 11/15 Regions RAP Overview (Renal/ GU)

Sunday, November 15 2015, 7:29 PM

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#### **Tamsulosin and Kidney Stones (R.E.B.E.L. EM 8/7/15, Authored by Salim Rezaie) - Reviewed by Allison Grace**

- Where did using Alpha-Antagonists start? Physiologically, they decrease ureterospasm allowing for stone propagation
- Alpha receptors concentrated distal ureter so theoretically stone location important
- 2007 systematic review in Annals of Emergency Medicine which suggested encouraging findings for alpha-antagonists (16 studies) or calcium channel blockers (9 studies) to facilitate passage
  - But with caveat that the reviewed studies were fairly poor re: randomization, blinding and f/u – therefore limiting practice adoption until further large, well-done studies confirmed
- So, should we base our treatment on this review of multiple somewhat sub-par studies? Four additional studies were reviewed from 2009-2010, though all of which with their own limitations, to help further guide this question:
  - Al-Ansari et al 2010
    - RCT, double-blinded, placebo, 100 pts
    - Showed benefit: 82 vs. 61% spontaneous stone expulsion (RR 2.93)
    - More benefit seen for stones <5 mm
    - Limitations: unclear if ED pts or what primary outcome was
  - Hermanns et al 2009
    - RCT, double-blinded, placebo, 100 pts
    - Non-significant difference (86.7 vs 88.9%) in stone passage at 21 days and secondary endpoints of pain med use and time to passage
    - Majority of stones were <5 mm
  - Ferre et al 2009
    - RCT, not blinded or controlled, 80 pt in ED pts
    - Non-significant difference (77.1 vs 64.9%) in stone passage at 14 days and secondary endpoints of time to passage, pain scores, renal colic episodes, return ED visits
    - Small mean stone size of 3.6 mm
  - Vincendeau et al 2010
    - RCT, double-blinded, placebo, 129 pts
    - No statistically significant difference in time to expulsion or passage at 42 days
    - All ED pts admitted to urology
- Key Take-aways:
  - With the above evidence, no significant benefit seen in use of Tamsulosin for renal colic stone passage.
  - None of the studies is ideal and disagreement continues – lack a large, well-done study
  - Notable - adverse effects demonstrated have been minimal with alpha-antagonist use
- New Stuff!! Lancet study May 2015 (Not covered on post)
  - Multicenter, RCT, placebo-controlled, double-blinded
  - 1167 participants enrolled between 1/11 – 12/13
  - Randomized to receive Tamsulosin 0.4 mg, Nifedipine 30 mg or placebo
  - No significant differences in spontaneous stone passage at both 4 wks s/p randomization and at follow-up 12 wks s/p randomization between the 3 groups
  - Primary endpoint: “spontaneous stone passage” is defined as absence of need for intervention to assist stone passage)
  - Findings consistent across subgroups of sex, stone size, and stone location
  - Secondary outcomes without significant differences including analgesic use, time to stone passage and health status.

• [AIR Grade:](#)

Tier 1: BEEM Rater Scale	Score-choose only 1	Tier 2: Content accuracy	Score-choose only 1	Tier 3: Educational Utility	Score-choose only 1	Tier 4: EBM	Score-choose only 1	Tier 5: Referenced	Score-choose only 1
Assuming that the results of this article are valid, how much does this article impact on EM clinical practice?		Do you have any concerns about the accuracy of the data presented or conclusions of this article?		Are there useful educational pearls in this article for residents?		Is this article reflect evidence based medicine (EBM) and thus lack bias?		Are the authors and literature clearly cited?	
Useless information	<input type="radio"/>	Yes, many concerns from many inaccuracies	<input type="radio"/>	Low value: No valuable pearls	<input type="radio"/>	Not EBM based, only expert opinion (and thus more biased)	<input type="radio"/>	No	<input type="radio"/>
Not really interesting, not really new, changes nothing	<input type="radio"/>		<input type="radio"/>		<input type="radio"/>		<input type="radio"/>		<input type="radio"/>
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Your Score	5		5		4		5		7

**#US4TW Scrotal Pain (ALiEM, 02/12/15, Authored by Jeffrey Shih) - Reviewed by Mark Bergstrand**

- Case presentation: 22M with R testicular pain and nausea for 2.5 hours.
- Ddx: Epididymitis, Hematoma, Hernia, Hydrocele, Orchitis, Mass/Tumor, Testicular torsion, Scrotal abscess, Varicocele
- See site (link above) for ultrasound videos of the unaffected testicle (normal flow), affected testicle (decreased/ absent flow), and affected testicle after detorsion maneuver (increased flow).
- US Tips:
  - Linear probe
  - Frog leg position (Supine vs Sitting)
  - Rolled towel to support scrotum
  - Scan unaffected side first
- The Resistive Index = a quantitative measure of testicular flow (check site for details and nice overview)
  - Use pulsed-wave spectral doppler
  - Position gate over a testicular artery
  - Measure difference between systolic and diastolic velocity, then divide by systolic velocity
  - Normal RI = 0.5-0.7
  - RI > 0.7 is concerning for early torsion (suggests increased resistance)
- Two studies to determine sensitivity and specificity
  - [Blaivas et al.](#) AEM 2001 (36 total patients, only 3 torsions)
  - [Burks et al.](#) Radiology 1990 (32 total patients, 7 torsions)
  - 86-95% sensitive, 94-100% specific
    - Really small total numbers (68 total patients, small number of total tossed testicles)

• [AIR Grade:](#)

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Your Score	5		4		5		4		3

**Zosyn and AKI (ALiEM, 5/20/14, Authored by Bryan Hayes) - Reviewed by Steve Palm**

- Zosyn (piperacillin/tazobactam) linked to AKI in 4 recent studies
  - These were all small, retrospective, single center studies
  - [Gomes DM, et al. 2014](#)
    - Retrospective matched cohort of 224 pts receiving vanco+ zosyn or vancomycin + cefepime for more than 24 hours.
    - AKI incidence was higher in vanco + zosyn group in the unmatched analysis (34.8% vs 12.5%).
    - After adjusting for potential sources of bias through propensity score matched pairs and conditional logistic regression, piperacillin-tazobactam and vancomycin combination therapy (p=0.003) was an independent predictor of AKI.
    - There were no significant differences in time to AKI or hospital length of stay between groups.
  - [Moenster RP, et al. 2014](#)
    - Retrospective cohort study in 139 diabetics with osteomyelitis for at least 72 hours at a single VA Medical Center.
    - Compared pts treated with vancomycin+cefepime (VC) vs vanco+zosyn (VPT).
    - More AKI in patients treated with vanco+ zosyn (29.3% (32/109))than vanco + cefepime (13.3% (4/30)). However not statistically significant (the choice of VPT as therapy yielded an OR of 3.45 (95% CI 0.96-12.40; p 0.057)), but power was not met.
  - Burgess L, et al. 2014
    - Retrospective, single center cohort of 191 internal medicine and ICU pts receiving vancomycin or vancomycin+zosynfor at least 48 hours
    - Nephrotoxicity developed in 8.1% of vanco group and 16.3% of vanco + zosyn. p= 0.041.
    - However, If groups are equally sick then why use 2 abx compare to 1.
  - [Meaney CJ, et al. 2014](#)
    - Another retrospective analysis of 125 adult internal medicine patients receiving vancomycin for at least 72 hours.
    - On multivariable logistic regression analysis concomitant use ofzosynwas associated with increasedvancomycinassociatednephrotoxicitywith adjusted Odds Ratio of 5.36 (95 percent CI of 1.41-20.5)

- [AIR Grade:](#)

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Your Score	4		4		4		4		1

### [Inguinoscrotal Masses \(DFTB, 1/31/14, Authored by Camille Wu\)- Reviewed by Jackie Kelly](#)

- Both hernias and hydroceles are incomplete obliteration of the process vaginalis, just different manifestations: fluid--hydrocele, solid--hernia.
- Hernia
  - Urgent, can damage not only the bowel but the testis as well
  - The younger the child, the higher the incarceration risk
  - Try to reduce all unless erythematous (ischemic)
  - If reducible, reduce it, surgery 12 hours later
  - Girls get hernias too, ovaries can herniate, these have less ischemic risk than testes
- Hydrocele
  - "Third ball" as it is a cystic collection
  - Non-urgent, self-resolving, if >2 years/enlarging/tense, may warrant repair
- Undescended Testes
  - 4% at birth → 1% by age 1, most testes are descended by 3-6 months, orchidopexy before age 1 is recommended
  - Increased risk of malignancy even after orchidopexy, need increased surveillance
  - To distinguish between retractile vs undescended: observe first, avoid cold hands, scrotum is key-- if loose, think retractile, if small, think undescended
  - Can have "ascending" testes around age 8-9, if spermatic cord remains short
- Varicocele
  - "Bag of worms" → varicose veins in scrotum
  - L > R due to renal drainage instead of IVC drainage
  - Rule out other obstruction causing venous congestion
  - Treat if painful, testicular atrophy, IR embolization or surgical ligation

• [AIR Grade:](#)

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Your Score	2		7		5		4		7

**CIN (Boring EM, 06/22/15, Authored by Michael Garfinkle) - Reviewed by Kevin Torkelson**

- Why do we think IV contrast is so bad? What is the risk of Contrast-Induced Nephropathy?
  - CI-AKI, is typically defined as a rise in creatinine by 25% or 44 μmol/L within 24 to 72 hours of contrast exposure.
  - [An outpatient study](#) stated the incidence is as high as 10%
  - Risk/incidence of CIN difficult to access due to inability to perform RCT (contrast vs non-contrast CT)
  - [Another study](#) found a 10% incidence of AKI in an inpatient population that did not receive contrast
- Recent literature
  - Two large observational studies (using propensity matching) recently published compared patients undergoing contrast CTs with a control group of patients undergoing non-contrast CTs
  - Limitations: Propensity matching can only control for factors that the statistician plugs into the model and some confounders may be missed
  - [1<sup>st</sup> Study](#) - No increase in the risk of AKI at any GFR
  - [2<sup>nd</sup> Study](#) - Risk of CIN only at GFRs below 30 mL/min/1.73m<sup>2</sup>
- [New Study](#) (done by blog post author, FYI)
  - Objective: Compare the incidence of AKI in patients 24-48 hours after receiving a contrast scan (utilizing immediately pre-scan creatinine values as their baseline) with themselves a few days later (72H-96H, with creatinine values at 24H-48H as their baseline).
  - Results:
    - No increased incidence of AKI immediately after the scan
    - No increased risk of dialysis.
  - Limitations: Small sample size and poor precision in patient with GFR < 30
- Summary
  - Overall incidence of CIN is potentially much lower than previously thought, with the risk close to 0% in patients with GFRs greater than 30.
  - In patients with GFR less than 30, risk of CIN is less well defined.
  - Above studies do not address CIN in patients receiving contrast via arterial administration (ie coronary angiography), which may pose a higher risk for CIN

• [AIR Grade:](#)

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Your Score	4		6		4		6		7

Edited by Joe Walter

