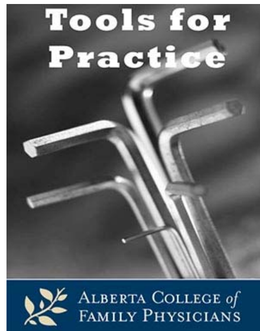
Tools for Practice is proudly sponsored by the Alberta College of Family Physicians (ACFP). ACFP is a provincial, professional voluntary organization, representing more than 2800 family physicians in Alberta. Established over fifty years ago, the ACFP strives for excellence in family practice through advocacy, continuing medical education and primary care research. www.acfp.ca

January 18, 2010



Is there more to medical management of renal stones than analgesia?

Clinical Question:

In patients with renal stones eligible for observation, does medical expulsion therapy (MET) improve passage of stones and other clinically relevant outcomes?

Evidence

A recent systematic review and meta-analysis addresses this question.

- Meta-analysis[1] of 33 Trials (3105 patients) examined alpha-blockers (most often tamsulosin) or calcium channel blocker (nifedipine) in patients with renal stones (primarily <10mm, frequently distal ureter).
  - Stone Expulsion is statistically significantly better with MET vs Placebo (80% vs 54%)
    - Absolute difference 26%, number needed to treat (NNT) of 4
- MET also reduced time to expulsion, need for analgesia, pain scores and hospitalization rates
  - Stone size impacts the success of MET. Smaller and more distal stones more likely to pass spontaneously and therefore less likely to benefit with MET.
  - Absolute benefit for stones ≥5mm twice that for <5mm (31% versus 15%).
- Two previous meta-analyses[2,3] examined this exact topic: both with the same findings, although adverse events were greater with calcium channel blockers.

Context

- European[4] and US[5] Guidelines for urolithiasis recommend MET as an option in:
  - Newly diagnosed ureteral stone <10 mm in patients without need for urgent urological intervention
  - Patients with well-controlled pain, not septic, good renal function, and who are followed with periodic imaging to monitor stone position and assess hydronephrosis.
- Two recent well done trials[6,7] did not find a difference with MET for stone expulsion. However,
  - Stone size in the studies were small (mean ≤4mm) and most patients would pass these without MET[6,7]
  - In these studies, alpha-blockers still reduced time to stone passage[6], pain

scores[6] and need for analgesia.[7]

- MET dosing[2] = tamsulosin 0.4mg, terazosin 5mg, doxazosin 4mg or nifedipine 30mg (often SR), once a day until stone passed or for 4 weeks (whatever is less).

Bottom-line: The current evidence indicates that patients with renal stones <10mm, who are eligible for observation, can be offered alpha-blockers or nifedipine to increase the chance of stone expulsion, decrease pain and decrease the time to stone expulsion.

Authors: G Michael Allan MD CCFP & Michael Kolber MD CCFP

1. Eur Urol. 2009;56(3):455-71.
2. Lancet 2006; 368: 1171-9.
3. Ann Emerg Med 2007; 50:552-63
4. Guidelines on Urolithiasis. European Association of Urologist. http://www.uroweb.org/fileadmin/tx_eauguidelines/2008/Full/17%20Urolithiasis.pdf Accessed Nov 8, 2009
5. 2007 guideline for the management of ureteral calculi. American Urologic Association.http://www.guideline.gov/summary/pdf.aspx?doc_id=12209&stat=1&string=renal+AND+stones Accessed Nov 8, 2009
6. J Urol. 2008;179(6):2244-7.
7. Eur Urol. 2009;56(3):407-12.

Tools for Practice is a biweekly article summarizing medical evidence with a focus on topical issues and practice modifying information. It is coordinated by G. Michael Allan, MD, CCFP and the content is written by practising family physicians. Archived articles are available on the Towards Optimized Practice and ACFP websites.

This communication reflects the opinion of the author and does not necessarily mirror the perspective and policy of the Alberta College of Family Physicians.