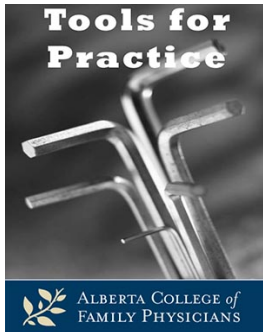


**Tools for Practice** is proudly sponsored by the Alberta College of Family Physicians (ACFP). ACFP is a provincial, professional voluntary organization, representing more than 4,400 family physicians, family medicine residents and medical students in Alberta. Established over sixty years ago, the ACFP strives for excellence in family practice through advocacy, continuing medical education and primary care research. [www.acfp.ca](http://www.acfp.ca)

**Reviewed: August 25, 2016**  
**Evidence Updated: New evidence**  
**Bottom Line: Reversed conclusion**  
**First Published: 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?**

**Bottom Line: Best evidence indicates that nifedipine does not help pass renal stones. Furthermore, there is real doubt if alpha-blockers like tamsulosin provide any benefit (except perhaps in stones >5mm).**

### **Evidence:**

- New evidence suggest no meaningful benefit.
  - Largest Randomized Controlled Trial (RCT)<sup>1,2</sup> of 1,167 patients with ureteric stone  $\leq 10$  mm (75%  $\leq 5$  mm, 65% distal ureter) randomized to nifedipine sustained-release 30 mg, tamsulosin 0.4 mg or placebo once daily for up to four weeks.
    - No difference between groups in:
      - Spontaneous stone passage (~80% in each group).
        - Possible effect with tamsulosin in stones >5 mm in distal ureter, (~10% improved passage at four weeks), but not significant. Nothing for nifedipine.
      - Time to stone passage, analgesic use, or self-reported health status.
    - More discontinuation due to adverse events with nifedipine [Number Needed to Harm (NNH)=10] and tamsulosin (NNH=25) versus placebo.<sup>2</sup>
  - Earlier Cochrane review<sup>3</sup> of 32 studies of 5,864 patients (largest meta-analysis=2,378 patients).
    - Alpha-blockers (most commonly tamsulosin) versus standard therapy.
      - Increased stone passage: Relative Risk (RR) 1.48 (1.33-1.64).
        - Effect reduced and (barely) no longer statistically significant when limited to six placebo-controlled trials: RR 1.22 (0.99-1.51).
      - Reduced risk of hospitalization, time to stone passage, number of pain episodes, analgesic use.
        - No difference in placebo-controlled trials.

- Possibly greater efficacy with larger stones: >5 mm (RR 1.68) versus ≤5 mm (RR 1.41)
  - Alpha-blockers increased stone passage versus nifedipine RR 1.19 (1.05-1.35), low-quality evidence.<sup>4</sup>
- Previous meta-analyses<sup>5-7</sup> that found benefit from MET with alpha-blockers or nifedipine included mostly non-blinded trials and did not evaluate trial quality or account for his risk of bias.

#### Context:

- Canadian,<sup>8</sup> European,<sup>9</sup> and US<sup>10</sup> 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 who are not septic, have good renal function, and who are followed with periodic imaging to monitor stone position and assess hydronephrosis.
  - All except the Canadian guidelines were published before the largest RCT.
- MET dosing:<sup>1-3</sup> Tamsulosin 0.4 mg once daily until stone passed or for four weeks (whichever occurs first).

#### Original Authors:

G. Michael Allan MD CCFP, Michael R. Kolber BSc MD CCFP MSc

#### Updated:

Ricky D. Turgeon BSc(Pharm) ACPR PharmD

#### Reviewed:

G. Michael Allan MD CCFP

#### References:

1. Pickard R, Starr K, MacLennan G, *et al.* Lancet. 2015; 386:341-9.
2. Pickard R, Starr K, MacLennan G, *et al.* Health Technol Assess. 2015; 19(63).
3. Campschroer T, Zhu Y, Duijvesz D, *et al.* Cochrane Database Syst Rev. 2014; 4:CD008509.
4. Ye Z, Yang H, Li H, *et al.* BJU Int. 2011; 108:276-9.
5. Hollingsworth JM, Rogers MA, Kaufman SR, *et al.* Lancet. 2006; 368:1171-9.
6. Singh A, Alter HJ, Littlepage A. Ann Emerg Med. 2007; 50:552-63.
7. Seitz C, Liatsikos E, Porpiglia F. Eur Urol. 2009; 56(3):455-71.
8. Ordon M, Andonian S, Blew B, *et al.* Can Urol Assoc J. 2015; 9:E837-51.
9. Guidelines on Urolithiasis. European Association of Urologist. Available for download at: [http://uroweb.org/wp-content/uploads/22-Urolithiasis\\_LR\\_full.pdf](http://uroweb.org/wp-content/uploads/22-Urolithiasis_LR_full.pdf). Last accessed: August 25 2016.
10. Preminger GM, Tiselius HG, Assimos DG, *et al.* J Urol. 2007; 178:2418-34.

**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 who are joined occasionally by a health professional from another medical specialty or health discipline. Each article is peer-reviewed, ensuring it maintains a high standard of quality, accuracy, and academic integrity. If you are not a member of the ACFP and would like to receive the TFP emails, please sign up for the distribution list at <http://bit.ly/signupfortfp>. Archived articles are available on the ACFP website.

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