

MANAGEMENT of RENAL COLIC

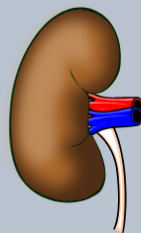
DO IV FLUIDS MAKE A DIFFERENCE?

- No reliable evidence to support the use of diuretics and high volume fluid therapy in renal colic
- IV fluids are not recommended to facilitate stone passage
- IV fluids not supported by evidence but use continues



Worster et al. 2012; Gottlieb et al. 2018; Tarplin et al. 2015

IS TAMSULOSIN MORE EFFECTIVE THAN PRAZOSIN?



- Tamsulosin is widely cited as the most effective drug for medical expulsion
- Evidence indicates a lack of head-to-head trials & other alpha-blockers still show efficacy
- Alpha-blockers are most effective if stones are >5mm

Campschroer et al. 2018; Hsu et al. 2018; Gottlieb et al. 2018; Raison et al. 2017; Sridharan et al. 2017

INDOCID: RECTAL or ORAL?

- No evidence in past decade directly addressing benefit of PR Indocid over oral Indocid
- Insufficient data to determine efficacy of PR route for any NSAID suppositories used in renal colic
- If ureteral stones expected to pass spontaneously, either NSAID tablets or suppositories may help



Pathan et al. 2018; EAU Guidelines 2018

BOTTOM LINE?



NSAIDS for 1st line therapy

- Reserve opioids for refractory pain
- Intramuscular NSAIDS offer most effective sustained analgesia and have fewer side effects

Pathan et al. 2016; Gottlieb et al. 2018; Hsu et al. 2018; EAU Guidelines 2018

Management of Renal Colic

“Patients treated with alpha-blockers may experience shorter stone expulsion times (mean difference -3.40 days) and likely require fewer hospitalisations (69 fewer hospitalisations per 1000 participants)”

Source: [Cochrane Database of Systematic Reviews](#) 2018; 4: CD008509

1. Do IV fluids make a difference ?

“By increasing urinary flow, it has been proposed that the stone may be pushed through the ureter. However, this has not been demonstrated to facilitate stone passage or affect pain scores.”

2018 – Literature review

The evaluation and management of urolithiasis in the ED: A review of the literature

- Authors recommend using IV fluids for hydration only, not recommended to facilitate stone passage

Source: Gottlieb et al. [American Journal of Emergency Medicine](#) 2018; 36(4): 699-706

2015 – Current practice summary

Fluid bolus for renal colic: current practice

- The use of forced fluids continues to be a common practice in emergency departments and they are frequently administered despite normal blood urea nitrogen-to-creatinine ratios
- However, randomized controlled trials have shown no benefit of fluid boluses in this setting

Source: Tarplin et al. [Urology Practice](#) 2015; 2(5): 239-243

2012- Systematic review

Fluids and diuretics for acute ureteric colic

- We found no reliable evidence in the literature to support the use of diuretics and high volume fluid therapy for people with acute ureteric colic
- Given the potential positive therapeutic impact of fluids and diuretics to facilitate stone passage, the capacity of these interventions warrants further investigation to determine safety and efficacy profiles

Source: Worster et al. [Cochrane Database of Systematic Reviews](#) 2012; 2: CD004926

2. Medical expulsion therapy

Is Tamsulosin more effective than Prazosin?

2018

Alpha-blockers as medical expulsive therapy for ureteral stones

- Patients treated with alpha-blockers may experience shorter stone expulsion times (mean difference -3.40 days) and likely require fewer hospitalisations (69 fewer hospitalisations per 1000 participants)
- Alpha-blockers “slightly increase the risk of major adverse events”
- “Patients with larger stones (>5mm) will benefit most from an alpha-blocker, because smaller stones often tend to pass spontaneously even without the use of an alpha-blocker”
- Reviewers found no evidence that the effectiveness of alpha-blockers on investigated outcomes differs by the type of alpha-blocker used

Source: Campschroer et al. [Cochrane Database of Systematic Reviews](#) 2018; 4: CD008509

Silodosin versus tamsulosin for medical expulsive treatment of ureteral stones: a systematic review and meta-analysis

- “compared to tamsulosin, silodosin provided significantly better stone passage for patients with ureteral stones (particularly for sizes of 5~10 mm), shorter expulsion times, and fewer pain episodes but caused a higher incidence of retrograde ejaculation”

Source: Hsu et al. [PloS One](#) 2018; 13: e0203035

The evaluation and management of urolithiasis in the ED: A review of the literature

- Tamsulosin is beneficial for stones >5mm; side effects include orthostatic hypotension
- “Patients should be advised on strategies to reduce orthostatic symptoms, and consideration should be given for taking the medications at night before going to sleep”

Source: Gottlieb et al. [American Journal of Emergency Medicine](#) 2018; 36: 699-706

Efficacy and safety of alpha blockers in medical expulsive therapy for ureteral stones: a mixed treatment network meta-analysis and trial sequential analysis of randomized controlled clinical trials

- Due to lack of head-to-head clinical trials within alpha blockers, only Tamsulosin has been widely recommended by urological guidelines

Source: Sridharan et al. [Expert Review of Clinical Pharmacology](#) 2018; 11: 291-307

2017

Alpha blockers in the management of ureteric lithiasis: A meta-analysis

- “Despite the opposing results of recently published trial, current evidence continues to demonstrate a potential benefit of α -blocker treatment particularly for distal stones over 5 mm”
- “Use of an α -blocker is associated with a 49% increase in the chance of passing a ureteric stone compared to either standard therapy or placebo. Tamsulosin was used in the majority of studies, however, all formulations (tamsulosin, doxazosin, terazosin, alfuzosin, silodosin, naftopidil) demonstrated beneficial effects of α -antagonism in stone expulsion”

Source: Raison et al. [International Journal of Clinical Practice](#) 2017; 71

3. Indocid – PR or oral?

2018

A systematic review and meta-analysis comparing the efficacy of nonsteroidal anti-inflammatory drugs, opioids, and paracetamol in the treatment of acute renal colic

- ‘The per rectal (PR) route of NSAID administration is a common practice in many centers. However, for PR route of NSAID administration, there were insufficient data to pool the results because of a lack of common outcome measures or common routes of drug administration in the studies identified’
- Authors encourage clinicians to carefully consider the route-specific benefits, discomforts, logistics involved, and patient preference while choosing the right analgesic approach
- Well-designed, large RCTs are needed to assess the efficacy of PR route of NSAID administration

Source: Pathan et al. [European Urology](#) 2018; 73(4): 583-595

European Association of Urology: Guidelines on urolithiasis

- For patients with ureteral stones that are expected to pass spontaneously, NSAID tablets or suppositories (e.g., diclofenac sodium, 100-150 mg/day, 3-10 days) may help reduce inflammation and the risk of recurrent pain
- NSAIDs are “very effective in treating renal colic and are superior to opioids”

Source: [European Association of Urology](#) 2018

Bottom line

2018

A systematic review and meta-analysis comparing the efficacy of nonsteroidal anti-inflammatory drugs, opioids, and paracetamol in the treatment of acute renal colic

- NSAIDs were at least equivalent to opioids and paracetamol for the relief of acute renal colic pain at 30 min after delivery
- There was less vomiting and fewer requirements for rescue analgesia compared with opioids; NSAIDs required less rescue analgesia compared with paracetamol
- NSAIDs should be the preferred analgesic option for patients presenting to the emergency department with renal colic

Source: Pathan et al. [European Urology](#) 2018; 73(4): 583-595

2016

Delivering safe and effective analgesia for management of renal colic in the emergency department: a double-blind, multigroup, randomised controlled trial

- In this three-treatment group trial, participants were assigned to receive IM diclofenac, IV morphine, or IV paracetamol
- Intramuscular NSAIDs were found to offer the most effective sustained analgesia for renal colic with fewer side-effects

Source: Pathan et al. [The Lancet](#) 2016; 387: 1999-2007

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