



EM CASES SUMMARY

Episode 81 – A Balanced View on Recent EM Literature with Joel Yaphe

With Drs. Joel Yaphe & Anton Helman

Prepared by Dr. Anton Helman, May 2016

In this episode Dr. Yaphe, at *University of Toronto's Update in EM Conference - Whistler*, leads us through a few key articles from the past year including the REVERT trial to convert SVT, medical expulsive therapy for urolithiasis, steroids in anaphylaxis, and analgesics for low back pain, and discusses whether they should (or rather, should not) change our practice. He challenges authors' conclusions and questions whether the findings are relevant to our patients.

Modified Valsalva Maneuver to Convert SVT – The Revert Trial

Does a modified Valsalva maneuver to convert SVT have any advantage over the traditional Valsalva maneuver?

Background: The traditional Valsalva maneuver has been shown to convert stable SVT in only approximately 15% of patients. By adding a step to the traditional Valsalva maneuver that utilizes increased venous return and vagal stimulation, can we increase the conversion rate?

Appelboam A, Reuben A, Mann C, et al. Postural modification to the standard Valsalva manoeuvre for emergency treatment of supraventricular tachycardias (REVERT): a randomised controlled trial. *Lancet*. 2015;386(10005):1747-53.

The Study: Non-blinded multi-centre, randomized controlled trial in UK of 433 patients

Two simple steps:

1. In a semi-recumbent position patients perform a traditional Valsalva maneuver: Forced expiration

producing 40mmHg pressure for 15 seconds by blowing into a special device (blowing into a 10cc syringe which is readily available in your ED is probably equivalent).

2. Patient lies down in a supine position and a ED staff member raises the patient's legs to a 45° angle for 15 s (causing increased venous return and vagal stimulation).

Results: Return to sinus rhythm at one minute was 43% with the modified Valsalva maneuver vs. 17% with traditional Valsalva maneuver.

- NNT = 3.8 to convert SVT to patient's baseline rhythm.
- Secondary outcomes included less use of adenosine and other anti-arrhythmic treatment.
- Can teach patients how to do this themselves so that they can self-cardiovert without having to come to the ED.

Issues: This study compared the new technique to an erroneous traditional Valsalva technique ie. the traditional technique in this study had the patient in a 45° *semi-recumbent position* rather than a supine position. We still

don't know if this new technique is any better than a properly performed supine Valsalva maneuver.

Dr. Yaphe's Conclusions: It is reasonable to attempt this modified Valsalva technique in stable patients with SVT in the ED, however this study compared this new technique to an improper traditional Valsalva maneuver.

Medical Expulsive Therapy for Renal Colic in Not Dead

Is it time to throw out the baby with the bathwater?
The *SUSPEND study*.

Background: There is some support in previous metaanalyses for use of medical expulsive therapy to promote stone passage, but the evidence is weak.

Picard R et al. Medical expulsive therapy in adults with ureteric colic: a multicentre, randomised, placebo-controlled trial. *Lancet*. 2015; 386: 341–49.

The Study: RCT of 1167 patients at 24 UK hospitals with single stones <10mm in diameter randomized to nifedipine 30mg vs tamsulosin 0.4mg vs placebo looking at the primary outcome of need for urologic intervention to facilitate passing of the stone at 4 weeks. One quarter of patients had stones >5mm in size. Secondary outcomes included pain and time to stone passage.

The Results: All 3 groups had about a 20% rate of stone passing at 4 weeks (no statistical difference), however when they looked at the rate of passing of stones in the lower ureter they did find that medical expulsive therapy was more effective than placebo (86% vs 82%).

Author's Conclusion: *"We found no evidence that the drugs reduced pain, hastened time to stone passage, or improved health state. The precision of trial estimates of treatment effect is sufficient to rule out any clinically useful benefit of these drugs to assist stone passage in this patient group at the dose and duration examined"*

Issues:

- 75% of stones were <5mm which generally are not expected to require intervention at 4 weeks as most of them pass within 2 weeks
- not powered for subgroup analyses based on stone size and location
- collection of measurements for secondary outcomes was incomplete

Furyk JS, Chu K, Banks C, et al. Distal Ureteric Stones and Tamsulosin: A Double-Blind, Placebo-Controlled, Randomized, Multicenter Trial. *Ann Emerg Med.* 2016;67(1):86-95.e2.

The Study: RCT of 403 patients at 5 Aussie hospitals with distal ureteric stones <10mm in diameter randomized to tamsulosin 0.4mg vs placebo looking at stone expulsion rate at 28 days.

The Results: No benefit overall for tamsulosin. Benefit in pre-specified subgroup with stones >5mm (81.3% v 61.0% stone passage at 28days, with NNT = 4.5.

Other Studies to consider in your decision to prescribe medical expulsive therapy:

A metanalysis looking at studies comparing *silodosin* 8mg vs tamsulosin 0.4mg found significantly higher stone expulsion rates and faster expulsion times for silodosin vs tamsulosin.

In a blinded RCT of 100 patients with distal stones comparing *sildenafil citrate* to placebo, 67% of the patients in the sildenafil group vs. 40% of the patients in the placebo arm spontaneously passed their stones, and sildenafil treatment was associated with a 2.7 times increased likelihood of stone expulsion compared with placebo.

A study comparing tamsulosin to *sexual intercourse for small distal stones* showed that sexual intercourse at least 3 times per week increased the probability of stone passage.

A study out of CMAJ found that there may be an *increased risk of stroke in early post initiation period of alpha blockers*, however the association is questionable because it was found only in patients who had a recent stroke and were not on other antihypertensive agents.

Dr. Yaphe's Conclusions:

- Medical expulsive therapy is not dead
- Consider using medical expulsive therapy for distal stones
- These studies may/may not change your practice
- Consider avoiding medical expulsive therapy in elderly hypertensive patients
- Involve patients in decision-making

Do Nurse-initiated Ottawa Ankle Rules Decreased Length of Stay?

Can our ED flow improve if nurses trained to use the Ottawa Ankle Rules screen patients with ankle injuries before ED doc sees them?

Lee WW, Filiatrault L, Abu-laban RB, Rashidi A, Yau L, Liu N. Effect of Triage Nurse Initiated Radiography Using the Ottawa Ankle Rules on Emergency Department Length of Stay at a Tertiary Centre. CJEM. 2016;18(2):90-7.

The Study: A randomized controlled trial of 146 patients randomly assigned to standard triage vs. Ottawa Ankle Rule application by 15 trained triage nurses.

Results: The primary outcome, median ED length of stay was only *20 minutes faster* with nurse-initiated Ottawa Ankle Rules.

Issues: *X-ray utilization rate went UP to 97%* with the nurse-initiated Ottawa Ankle Rules with no missed fractures. Of the 10 patients in the nurse-initiated OAR group, 8 had radiographs ordered later by an emergency physician anyhow!

Dr. Yaphe's Conclusions: Nurse-initiated Ottawa Ankle Rules *increase* x-ray utilization while not impacting length of stay very much. Local quality improvement initiatives should be done for these types of protocols to help improve utilization and patient flow.

For our podcast on The Ottawa Clinical Decision Rules with Ian Stiell go to [Episode 56](#)

<http://emergencymedicinecases.com/episode-56-stiell-sessions-clinical-decision-rules-risk-scales/>

Steroids in Anaphylaxis Redux

For patients who present to the ED with anaphylaxis, should they receive steroids?

Background: There has been controversy as to whether steroids decrease relapse rates or help prevent biphasic reactions in anaphylaxis.

Grunau BE, Wiens MO, Rowe BH, et al. Emergency department corticosteroid use for allergy or anaphylaxis is not associated with decreased relapses. *Ann Emerg Med* 2015; 66:381 -9.

Grunau BE, Li J, Yi TW, et al. Incidence of clinically important biphasic reactions in emergency department patients with allergic reactions or anaphylaxis. *Ann Emerg Med*. 2014;63(6):736-44.e2.

The Study: Retrospective study of 2701 patients diagnosed with either allergic reaction or anaphylaxis at 2 urban EDs in Vancouver looking at allergy related revisits to the ED.

Results: Allergy-related ED revisits occurred in 5.8% and 6.7% of patients treated with and without steroids, respectively.

NNT = 176. NNH = 65.

Author's Conclusion: *"Among ED patients with allergic reactions or anaphylaxis, corticosteroid use was not associated with decreased relapses to additional care within 7 days."*

Issues:

This was a *retrospective* study as apposed to an RCT. Only 54% of the patient diagnosed with anaphylaxis received epinephrine! Remember that ALL patients diagnosed with anaphylaxis should receive epinephrine. In addition, many patients diagnosed with allergic reaction without anaphylaxis received steroids. In other words, the population they studied was over-inclusive. What we really want to know is whether or not steroids decrease relapse rates only in patients with true anaphylaxis who were treated properly with epinephrine.

Dr. Yaphe's Conclusions: This study does not provide enough evidence to abandon steroids for anaphylaxis.

For a full discussion on Anaphylaxis visit Episode 78 [Anaphylaxis Live from The EM Cases Course with David Carr](#)

<http://emergencymedicinecases.com/anaphylaxis-anaphylactic-shock/>

Analgesics for Acute Non-traumatic Non-radicular Low Back Pain

Which analgesics, or combination of analgesics is best for acute low back pain in the ED?

Friedman BW, Dym AA, Davitt M, et al. Naproxen With Cyclobenzaprine, Oxycodone/Acetaminophen, or Placebo for Treating Acute Low Back Pain: A Randomized Clinical Trial. JAMA. 2015;314(15):1572-80.

The Study: Randomized, double-blind 3-group study of 323 patients with non-traumatic, non-radicular acute low back pain randomized to

- naproxen 500mg bid + placebo
- naproxen 500mg bid + cyclobenzaprine 5 mg
- naproxen 500mg bid + oxycodone/acetaminophen 5mg/325 mg 1-2 q8h prn

Looked at improvement in Roland-Morris Disability Questionnaire (RMDQ) at 1 week.

Results: All groups had significant improvement of about 10 points on the RMDQ with no significant difference between any of the groups. The cyclobenzaprine and percocet groups had significantly more side effects.

Author's Conclusions: *"Among patients with acute, nontraumatic, nonradicular low back pain presenting to the ED, adding cyclobenzaprine or oxycodone/acetaminophen to naproxen alone did not improve functional outcomes or pain at 1-week follow-up".*

Issues: Is 7 days improved functional outcome or pain at 1-week follow up the most relevant outcome measures for our patients? All the patients got better by 1 week regardless of which group they were randomized to. The study does *not* address whether short courses of narcotic analgesics in select populations will improve functional outcome and pain within hours to a few days.

Dr. Yaphe's Conclusions:

- Increased side effects with more drugs
- No need to *routinely* prescribe narcotic analgesics for patients with low back pain
- Remember potential side effect profile of (prolonged) NSAID use

Bottom Line: This study does *not* provide enough evidence to guide use of short courses of narcotic analgesics in select groups of patients with severe low back pain.

The Controversy: What is the relationship between use of short courses of narcotic analgesics in patients with 'severe acute pain' and the problems associated with long term use of high potency narcotics in patients with chronic pain? There

are two recent studies suggesting that short courses of narcotic analgesics might lead to long term addiction issues, but these studies have several methodological issues.

Hoppe JA, Kim H, Heard K. Association of emergency department opioid initiation with recurrent opioid use. *Ann Emerg Med.* 2015;65(5):493-499.e4.

This study concluded that *"opioid-naïve ED patients prescribed opioids for acute pain are at increased risk for additional opioid use at 1 year"*, however it was a retrospective study with a wide variety of conditions and they did not reveal the number of tablets or number of days of the prescription. In other words, this study did not answer the question of whether a **short course** of opioid analgesics in opioid-naïve patients increases the risk of long term use, dependence, abuse or addiction.

Butler MM, Ancona RM, Beauchamp GA, et al. Emergency Department Prescription Opioids as an Initial Exposure Preceding Addiction. *Ann Emerg Med.* 2016.

This study concluded that *"although short-term opioid administration by emergency providers is unlikely to cause addiction by itself, ED opioid prescriptions may contribute to the development of addiction in some patients"*, however this too was a retrospective study of only 59 patients and 82% of the patients that reported non-medicinal use of opioids after they received their ED prescription reported non-opioid substance use or treatment for alcohol abuse before initial opioid exposure. These were at-risk patients to begin with who were *not* naïve to substance use.

In an editorial in the same *Annals of EM* edition, Perrone J et al commented *"simply swinging from the accusations of oligoanalgesia and pressure to prescribe more opioids to an era of 'opiophobia' will not optimize outcomes. Until better data exist, each emergency physician must make the point-of-care decision, armed with limited data and his or her bedside skills about how to treat a patient's pain."*

For our podcast on Low Back Pain Emergencies with Walter Himmel and Brian Steinhart go [here](http://emergencymedicinecases.com/episode-26-low-back-pain-emergencies/).

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