

Worksheet for Using an Article About Therapy or Prevention

Journal Club Eastern Virginia Medical School

CITATION: Safdar B, Degutis LC, Laundry K, et al. Intravenous Morphine Plus Ketorolac Superior to Either Drug Alone for Acute Renal Colic. Ann Emerg Med 2006.

I. WHAT IS BEING STUDIED?	
1. Study Objective	To determine if the combination of IV ketorolac and morphine is better than either agent alone for pain control in acute renal colic.
2. Study Design	Prospective, double-blinded, randomized controlled in urban ED setting.
3. Inclusion Criteria	18-55 y.o with clinical diagnosis of acute renal colic and pain rated ≥ 5 out of 10-cm on a visual analogue scale or moderate or severe on a 4 category verbal pain scale.
4. Exclusion Criteria	1. documented or suspected pregnancy 2. breast feeding 3. contraindication to NSAIDS or opiates 4. known renal dysfunction 5. received analgesics within 6 hours before presentation 6. history of bleeding diathesis 7. history of peptic ulcer disease 8. current use of warfarin 9. history of drug dependence or current use of methadone 10. peritonitis or presence of any peritoneal signs 11. non-English speaking 12. previously enrolled in the study
5. Interventions Compared	Group 1- at time 0, morphine 5mg; at time 20 min, morphine 5mg Group 2- at time 0, ketorolac 15mg; at time 20 min ketorolac 15mg Group 3- at time 0, combination; at time 20 min, combination

	*at 40 min patient with persistent pain received rescue dose of morphine 5mg.
6. Outcomes Evaluated	Primary – clinically significant reduction in pain at 40 min Secondary – need for rescue analgesia at 40 min and the occurrence of adverse events.
II. Are the results of the study valid?	
1. Was the assignment of patients randomized?	yes
2. Were all patients who entered the trial properly accounted for and attributed at its conclusions?	555 consecutive patients assessed for eligibility; 425 were excluded because they either did not meet inclusion criteria, were missed, refused to participate, or unable to give consent. The remaining 130 were randomized into one of the three treatment arms. 3 protocol violations: 2 patients received rescue morphine instead of a second dose of study drug, and 1 patient received rescue morphine in addition to the second dose of the study drug before the protocol ended. All 3 patients were in the morphine group.
3. Was follow-up complete?	Adverse events were recorded according to a set of defined events, there was no mechanism to record events such as GI hemorrhage and nephrotoxicity associated with ketorolac after discharge from the ED.
4. Were patients, health workers and study personnel “blind” to treatment?	yes
5. Were study groups similar at the start of the trial?	Yes; the mean score on visual analogue scale was 8.7 for those receiving morphine, 8.8 for the ketoralac group, and 8.9 for the combination group.
6. Aside from the experimental intervention, were the groups treated equally	yes

III. What were the results?	
1. How large was the treatment effect? (difference between treatment and control group).	The mean pain score at the end of the 40 mins were 3.7cm, 4.1cm, and 2.0cm in the morphine, ketorolac, and combination group, respectively. There was no significant difference in the reduction of pain between the morphine and ketorolac group. At 40 min.
2. What was the estimated treatment effect at a 95% confidence interval?	Yes, a 1.3 cm change in the visual analogue scale is considered to be clinically significant. Combination vs morphine = 1.8cm (95%CI -3.3 to -0.1). Combination vs ketorolac = 2.2cm (95% CI -3.7 to -0.5)
IV. Will the results help me in caring for my patients? (applicable ?)	What do you think? Conclusion from this study suggest that combination therapy provides greater pain relief with fewer side effects.
1. Were all clinically important outcomes considered?	Other considerations: Morphine dosing was not weight based which may have resulted in under or over dosing; Recommended single dose of IV ketorolac in adults under the age of 65 y.o is 30mg. The initial dosing of 15,g in this study may have reduced its effectiveness.
2. Are treatment outcomes worth the potential harms?	Of the patient in the morphine group, 21%experienced nausea and vomiting, versus 25 and 65 in the ketorolac and combination groups, respectively.

Additional Comments: In patients with acute renal colic both agents appear to offer benefit w/o significant harms. Consensus of our group felt that Initial drug dosages used in the study were less than used in our community and could account for a greater need for rescue meds in the single agent groups.