Pharmacy Friday's

Opioid Alternatives

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1. Pain is one of the most common reasons for patients to visit the emergency department (ED)
2. It is estimated that at least 30,000 people die in the United States as a direct result of the use of opioids each year
3. Although it seems that no specific specialty has been primarily responsible for the opioid epidemic, clinicians in the ED are uniquely positioned on the front lines to be able to combat the ongoing crisis
4. An expanding body of research is beginning to emerge that suggests that nonopioid medications such as acetaminophen or nonsteroidal anti-inflammatories (NSAIDs) can provide adequate analgesia and decrease the reliance of emergency clinicians on opioids

Non-Opioid Agents	Drug info
Acetaminophen	• Dose: 325-1000 mg PO/Rectal/IV* • Onset: PO 10-30 min; IV ~5 min • Duration: PO ~4.5 hr; IV ~3 hr • Indication: mild to moderate pain
Ibuprofen	• Dose: 400-800 mg PO • Onset: 15-30 min • Duration: ~6hrs • Indication: mild to moderate pain
Ketorolac	• Dose: 10-30 mg PO /IV/IM • Onset: ~ 30 min • Duration: 4-6 hours • Indication: acute flank, abdominal, MSK, headache, fractures
Ketamine*	• Dose: 0.15-0.30 mg/kg ± 0.15-0.25 mg/kg/hr infusion IV/IM/IN • Onset: 10-30 min • Duration: 30-60 min • Indication: Moderate to severe MSK pain, flank pain,
Lidocaine*	• Dose: 1.5 mg/kg IV 5% Patch 12hr out of 24hr IV/transdermal • Onset: IV 1-5 min Patch ~ 4 hr • Duration: IV 0.5-1 hr Patch ~12 hr • Indication: Renal Colic, mild MSK pain
Metoclopramide/ prochlorperazine + diphenhydramine	• Dose: 10 mg+ 25-50 mg Benadryl IV/PO • Onset 5-10 min • Duration: 3-5 hr • Indication: Migraine

* limited access or nonformulary at GHS

Author, Year	Design/ sample size/ type of pain	Nonopioid Intervention	Comparator	Outcome
Chang, 2017	-RCT -n=411 -moderate to severe acute extremity pain	Ibuprofen 400 mg + APAP 1000 mg	-Oxycodone/APAP 5/325mg -Hydrocodone/APAP 5/325 -Codeine/APAP 30/ 300 mg	**Reduction in pain score 2 hours after single dose** Ibuprofen 400 mg + APAP 1000 mg =**4.3** Oxycodone/APAP 5/325mg = **4.4** -Hydrocodone/APAP 5/325 = **3.5** -codeine/APAP 30/ 300 mg= **3.9** "..**no statistically significant** or clinically important differences in **pain reduction**"
Rainer, 2000	- RCT - N=148 - painful isolated limb injuries	IV Ketorolac 10mg x 1 + PRN IV ketorolac 5mg q5m (max 30 mg)	Morphine 5mg x 1 + PRN morphine 2,5mg q5m (max 15 mg)	**No difference in median time to pain relief** **Patients' satisfaction was 6.0 for ketorolac and 5.0 for morphine (P<0.0001)** **Median reduction in pain score in the was 1.09/hr vs 0.87/hr in the ketorolac and morphine group respectively (P=0.003)**
Motov, 2018	-RCT - n=30 - severe acute abdominal, flank, MSK, or malignant pain	IV Ketamine 0.3 mg/kg over 15 min	Morphine 0.1 mg/kg over 15 min	Primary change in mean pain scores was **not significantly different** Higher rates of psychoperceptual adverse effects with ketamine **No statistically significant differences** with respect to changes in vital signs and need for rescue medication
Soleimanpour, 2012	-RCT - n=240 - renal colic	IV lidocaine (1.5 mg/kg)	IV morphine (0.1 mg/kg)	Pain score at 5 min lidocaine 3.18 vs morphine 4.45 (p=0.001) Pain score at 30 min lidocaine 1.13 vs morphine 2.23 (p=0.001) **Lidocaine 90% vs 70 %morphine responded appropriately (score< 3) at end of treatment (p=0.0001)**
Kostic, 2010	-RCT -n=66 -acute migraine	IV prochlorperazine 10 mg+ IV diphenhydramine 12.5 mg	SubQ sumatriptan 6 mg + placebo	Baseline pain scores were similar for the groups (76 versus 71 mm) Mean reductions in pain intensity at 80 minutes or time of ED discharge were 73 mm vs 50 mm Sedation, nausea, and headache recurrence rates were similar.

References

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