Management of Abdominal Pain in the ED

@painfreeED

- Abdominal pain is the most frequent complaint in United States emergency departments (EDs), accounting for approximately 8% of all adult ED visits (1,2).
- In most adults, the rate of admission to the hospital for abdominal pain ranges from 18% to 42%, but the incidence soars in elderly patients (with "elderly" generally considered to be ages ≥ 65 years) (1,2).
- Even at the conclusion of an ED encounter for abdominal pain, many times the etiology remains obscure. In up to 40% of patients, the origin of abdominal pain is never determined (3.)
- The pathology encompassing abdominal pain is vast and ranges from mild, transient conditions to severe, life-threatening abdominal catastrophes.
- Management of abdominal pain (analgesia) is of great importance when is provided in timely, effective, and efficient matter:
  1. Alleviates pain
  2. Assist in diagnostic work up
  3. Streamlines the ED throughput and disposition

Historical Perspective (4):

- Medical Myth-Analgesia should not be given to patients with an acute abdomen because it obscures the diagnosis.
- Surgical tradition holds that the use of analgesics should be withheld from patients with acute abdominal pain until a diagnosis and management plan have been established by a surgeon.
- This belief originated early in the 20th century and was emphasized by Cope in his extremely influential book, *Early Diagnosis of the Acute Abdomen.* Cope claimed that analgesia would mask signs and symptoms, delay diagnosis, and lead to increased morbidity and mortality.
- Given that all the evidence in the medical literature suggests that the use of narcotic analgesia does not obscure diagnosis—and may even improve diagnostic accuracy—in such patients, the traditional practice of withholding pain medication in patients with substantial pain should be seen as **inappropriate and inhumane.**
- Numerous prospective randomized studies in the literature address the use of pain relief in patients with acute abdominal pain. Although study methods vary to some degree, all patients were randomly assigned to receive narcotic analgesia or placebo, and all studies used variations of visual analog scales to evaluate pain before and after patients received medication. All the studies then compared the

accuracy of the clinician's diagnosis and treatment in patients who did or did not receive narcotics; four of the studies used a double-blind design.

- All five studies addressing the effects of analgesia on diagnosis and treatment in patients with acute abdominal pain failed to produce any evidence that this practice is harmful. All of these studies, which together involved 748 patients, concluded that the appropriate use of analgesia can effectively decrease pain to a greater degree than it does the localization of tenderness, while possibly even facilitating the ability to make an accurate diagnosis.
    - *1. Hughes TJ. Opiates in acute abdominal pain [letter]. BMJ 1979;2(6198):1145.*
    - *2. Silen W. Cope's early diagnosis of the acute abdomen. 19th edition. New York (NY): Oxford University Press; 1996.*
    - *3. Attard AR, Corlett MJ, Kidner NJ, et al. Safety of early pain relief for acute abdominal pain. BMJ 1992;305:554-556.*
    - *4. Pace S, Burke TF. Intravenous morphine for early pain relief in patients with acute abdominal pain. Acad Emerg Med 1996;3:1086-1092.*
    - *5. LoVecchio F, Oster N, Sturmann K, et al. The use of analgesics in patients with acute abdominal pain. J Emerg Med 1997;15:775-779.*
    - *6 Vermeulen B, Morabia A, Unger PF, et al. Acute appendicitis: influence of early pain relief on the accuracy of clinical and US findings in the decision to operate—a randomized trial. Radiology 1999;210:639-643.*
    - *7 Zoltie N, Cust MP. Analgesia in the acute abdomen. Ann R Coll Surg Engl 1986;68:209-210.*

- **Bottom line**: Early and appropriate pain relief for patients with acute abdominal pain is humane, does not adversely affect diagnostic acumen or clinical decision making, and should be considered a part of the initial management of every such patient.

Pain Management:

- Despite the broad differential diagnosis for abdominal pain, management is relatively universal.
- General concepts for the treatment of abdominal pain **include a multi-modal analgesic approach** with judicious and responsible use of opioid agents for moderate to severe pain.
- Ultimately, the analgesic regimen should depend on the suspected source (type) of pain and patient's unique presentation, patients' co-morbidities, clinician's preference, and departmental protocols.

1. **Opioids (see opioids handout):**
    a. **Parenteral opioids** when used in titratable fashion are effective, inexpensive, and easily reversible analgesics that quickly relieve pain.

b. Parenteral opioids must be **titrated** regardless of their initial dosing regimens (weight-based or fixed) until pain is optimized to acceptable level or side effects become intolerable.

c. Pure m-receptors agonists **lack analgesic ceiling,** and their doses can be titrated upwards until pain is controlled, or side effects became intolerable or dangerous.

d. Commonly utilized opioids when administered in equianalgesic dosing regiments provide similar analgesics efficacy 10 mg vs 1.5 mg vs. 100 mcg. However, ED Providers should consider the risk of addiction with the opioids they prescribe and give those with a lower addictive potential.

e. **Morphine sulfate** provides better balance of analgesic efficacy and safety among all parenteral opioids. Hydrophilic, less euphoric, more dysphoric. Histamine release, pruritus, severely emetogenic.

- *Dosing regimens and routes:*
- *IV: 0.05-0.1mg/kg to start, titrate q 10-20 min*
- *IV: 4-6 mg fixed, titrate q 10-20 min*
- *SQ: 4-6 mg fixed, titrate q 20 min*
- *Nebulized: 0.2 mg/kg or 10-20 mg fixed, repeat q 15-20 min*
- *IM: should be avoided (pain, muscle fibrosis, necrosis, increase in dosing requirements)*

f. **Hydromorphone** should be avoided as a first-line opioid due to significant euphoria and severe respiratory depression requiring naloxone reversal.

g. **Avoid as a first-line opioid analgesic** for routine use in acute pain in the Acute care settings. Should be used in multi-analgesic-refractory pain or when morphine side effects become intolerable.

- *Dosing*
- *IV: 0.2-0.5 mg initial, titrate q10-15 min*
- *IM: to be avoided (pain, muscle fibrosis, necrosis, increase in dosing requirements)*
- *Significantly worse AE profile in comparison to Morphine*
- *Equianalgesic IV conversion (1 mg HM=8mg of MS)*
- *Overprescribed in >50% of patients*
- *Inappropriately large dosing in EM literature: 2 mg IVP*
- *Abuse potential (severely euphoric due to lipophilicity)*

h. **Fentanyl** is the most potent opioid, short-acting, requires frequent titration. The notion that fentanyl is short-acting is somewhat misleading. 80% of IV fentanyl gets extracted from the blood and gets deposited in the muscle and

fat tissue (mass and large number of mu-receptors) and then slowly leaking out thus half-life 11-13 hours.

i. If multiple small doses given rapidly or initial large dose, the receptors get saturated, and more fentanyl gets into brain and results are dire. (Cicero 2010)
    - *Dosing:*
    - *IV: 0.25-0.5 µg/kg (WB), titrate q10 min*
    - *IV: 25-50 µg (fixed), titrate q10 min*
    - *Nebulization: 2-4 µg/kg, titrate q20-30 min*
        1. *Deaton et al: Nebulized fentanyl (2 µg/kg) was compared to IVM (0.1 mg/kg) at 10, 20, 30, and 40 minutes; and patient and physician satisfaction was recorded. The NF group experienced more rapid pain relief and more sustained and clinically significant pain relief over the 40-minute study interval. There were no adverse effects noted in the NF group. Both patient and physician satisfaction scores were higher in the NF group. Fentanyl citrate at a dose of 2 µg/kg through a breath-actuated nebulizer appears to be a feasible and safe alternative to IVM (0.1 mg/kg) in the treatment of acute abdominal pain. (5).*
    - *IN: 1-2 µg/kg, titrate q5-10min*
        1. *Borland ML, Clark LJ, Esson A. Comparative review of the clinical use of intranasal fentanyl versus morphine in a paediatric emergency department. Emerg Med Australas. 2008 Dec;20(6):515-20. doi: 10.1111/j.1742-6723.2008.01138.x.*
    - *Transbuccal: 100-200µg disolvable tablets*

2. NSAID's (see NSAID's handout)

a. Limited utility in acute severe pain: non-titratable, adverse effect profile.
b. Honor analgesic ceiling-Lowest effective dose
c. Dosing:
    1. Ketorolac: 10-15 mg IV
    2. Diclofenac: 50 mg IV
    3. Limited data on IN Ketorolac
d. Consider use for biliary colic, cholecystitis, PID, severe menstrual cramps.
e. Consider combination with opioids.

3. Ketamine (see ketamine handout) (6)

a. Ketamine at doses of **0.1-0.3 mg/kg IV** can be as an adjunct to opioids or as an opioid alternative.

b. To avoid psycho-perceptual side effects, ketamine should be given slowly over 15-30 minutes.
c. Patients requiring repeat doses of ketamine may benefit from a continuous infusion (**0.1–0.15 mg/kg/hr**) and titrate to effect.
d. Acute/Chronic pain, gastroparesis, cancer pain, cannabis hyperemesis syndrome, opioid-tolerant pain, and opioid-induced hyperalgesic states (18).
e. Routes: IV, SQ, IN, Nebulized, possibly oral.

Routes and Dosing Regimens for ED Ketamine Administration for Pain

Route	Dosing	Comments
Intravenous (IV): **1. Weigh-Based** **2. Fixed** **3. Continuous Infusion**	**0.1-0.3 mg/kg over 15-30 minutes** **15-20mg over 15-30 minutes** **0.1-0.15 mg/kg/hr**	**Avoid Intravenous Push Dose (Higher rates of psycho-perceptual adverse effects)** **Titrate infusion up by 2.5-5 mg every 30-60 minutes**
Intranasal (IN)	**0.7-1 mg/kg**	**Adult patients might require higher concentrations of ketamine, Max dose per nostril-1 ml**
Subcutaneous (SQ): **1. Weigh-Based** **2. Fixed** **3. Continuous Infusion**	 **0.1-0.3 mg/kg** **15-20mg** **0.1-0.15 mg/kg/hr**	**Slower onset of analgesic than IV route** **Titrate infusion up by 2.5-5 mg every 30-60 minutes**
Inhalation (Nebulized)	**0.75-1.5 mg/kg**	**Titratable** **Consider using Breath-Actuated nebulizer**

4. UGRA (7-10)

a. The transversus abdominis plane or "TAP" block is an ultrasound-guided plane block providing analgesia to the anterior abdominal wall via delivery of local anesthetic between the internal oblique and transversus abdominis muscles.
b. Research has shown analgesic efficacy for abdominal wall pathologies such as abscesses, hematomas, surgical wounds, inguinal hernia, and appendicitis. (7-9)
c. Recent literature has suggested an abdominal fascial plane nerve block may be an effective adjunctive for acute abdominal pain. (7-10)

5. **Intravenous Lidocaine (11-15)**
    - **a.** Lidocaine is the voltage-dependent sodium channel blocking agent commonly used as an anesthetic in the emergency setting.
    - **b.** Dosing: 1.5 mg/kg over 15 minutes
    - **c.** IV lidocaine might be considered an analgesic adjunct to opioids or an analgesic alternative when opioids and/or NSAIDs are contraindicated. (11)
        - *A pilot, unblinded randomized controlled study comparing the efficacy of IV lidocaine vs IV morphine for patients aged ≥18 years with severe pain (numerical rating scale [NRS] ≥ 7). Participants were randomized to receive IV lidocaine (75 mg if <50 kg, 100 mg if 50-100 kg, and 150 mg if >100 kg) over 10 minutes, followed by a 50-minute IV lidocaine infusion of the same dose or provider-chosen dose of morphine. Thirty-two patients were enrolled. The lidocaine arm's mean pain NRS at 60 minutes was 5.1 (95% confidence interval [CI] = 3.3 to 6.8) compared with 4.2 (95% CI = 3.0 to 5.4) in the morphine arm, and the absolute difference was 0.9 (95% CI = -1.2 to 2.9* ***(11).***
    - **d.** However, as a stand-alone agent, IV lidocaine was found to be **inferior t**o IV hydromorphone in treating generalized abdominal pain in the emergency setting (12).
        - *120 mg of intravenous lidocaine or 1 mg of intravenous hydromorphone. By 90 minutes, patients randomized to lidocaine improved by a mean of 3.8 points on the 0-to-10 scale, whereas those randomized to hydromorphone improved by a mean of 5.0 points (mean difference 1.2; 95% confidence interval 0.3 to 2.2). Need for off-protocol "rescue" analgesics occurred for 39 of 77 lidocaine patients (51%) and 20 of 77 hydromorphone patients (26%) (difference 25%; 95% confidence interval 10% to 40%)* ***(12)***
    - **e.** A recent systematic review found no definitive evidence to recommend or discourage IV lidocaine use, noting “further research is needed to assess the efficacy and safety of IV lidocaine for specific pain pathologies in the emergency setting” (13).
    - **f.** Possible use in opioid -tolerant patients and chronic abdominal pain (14-16).
    - **g.** Individualized approach on case-by-case basis.

6. **Neuroleptics (Antidopaminergics) (16,17).**
    - **a.** Haloperidol and (less droperidol) are first-generation antipsychotics that achieve their analgesic effect through dopamine receptor blockade (D2-R antagonist).
    - b. Research has shown analgesic efficacy for sub-classes of abdominal pain such as gastroparesis and cannabinoid-induced hyperemesis syndrome.
        - Droperidol: 2.5- 5mg IV
        - Haldol: 5 mg IV
        - A randomized, double-blind, placebo-controlled trial of adult ED patients with acute exacerbation of previously diagnosed gastroparesis. The treatment group received 5 mg of haloperidol plus conventional therapy (determined by the treating

physician). The control group received a placebo plus conventional therapy. Of the 33 study patients, 15 were randomized to receive haloperidol. Before treatment, the mean intensity of pain was 8.5 in the haloperidol group and 8.28 in the placebo group; mean pretreatment nausea scores were 4.53 and 4.11, respectively. One hour after therapy, the mean pain and nausea scores in the haloperidol group were 3.13 and 1.83 compared to 7.17 and 3.39 in the placebo group.

7. **Capsaicin (18, 19)**
    a. Topical application for cannabis hyperemesis syndrome.
8. **PPI, H2-Blockers**
    a. GERD, PUD

9. **Acupuncture (20,21).**
    a. Data is limited, possible use for acute appendicitis (battlefield acupuncture, case report).
    b. Largest RCT to date in the ED failed to demonstrate analgesic superiority of Battlefield Acupuncture over placebo and SAC.
    c. Case report (Tsai 2016):
        - A 9-year-old boy with appendicitis experienced a pruritic reaction to morphine in the ED while awaiting surgery. He reported pain at a 5 of 10 intensity and received left ear auricular acupuncture with 3 Seirin J-Type needles. Needles were left in place for 1.5 hours and removed just before transfer to the operating room. During this interval, the patient had no pain and ambulated without difficulty (video link: https://youtu.be/OlkJ2f1PP0I). The child underwent appendectomy without complications.

10. **Acetaminophen (22-24)**
    a. Suboptimal in Acute Abdominal Pain (single dose, non-titratable, expensive)
    b. Inferior to Opioids for pain control in the ED as a single agent (22)
        - *Both 1 mg intravenous hydromorphone and 1 g intravenous acetaminophen provided clinically meaningful reductions in pain scores, treatment with hydromorphone provided both clinically and statistically greater analgesia than acetaminophen.*
    c. No additional benefits when used as an adjunct to opioids (23,24)
        - *The addition of 1 g of IV acetaminophen to 1 mg of IV hydromorphone provided neither clinically meaningful nor statistically superior analgesia than hydromorphone alone*
    d. Use limited to case-by -case basis

11. Disposition and Discharge Analgesic Options:

a. For patients with unremitting pain or surgical pathology, admission may be necessary for further treatment and analgesic management.
b. For stable/improving patients who may be discharged safely, provide close return precautions and a multi-modal pain management regimen of non-opioids and opioids for breakthrough pain only.
c. If opioids are necessary upon discharge, it is recommended to provide the lowest effective dose for the fewest number of days with strict instructions regarding abuse/misuse, safe storage/disposal, and timely follow-up.
d. Patients should be encouraged to use scheduled non-opioid medications while awake, reserving opioids only as needed for severe breakthrough pain.
e. Morphine sulfate immediate release (MSIR): Recommended guideline: 3-day supply of MSIR 7.5 mg q6-8hrs with a plan for reevaluation if pain persists beyond three days.

References:

1. Centers for Disease Control and Prevention. National Hospital Ambulatory Medical Care Survey: 2010 emergency department summary tables. 2010. Available at: http:// www.cdc.gov/nchs/data/ahcd/nhamcs_emergency/2010_ed_web_tables.pdf.
2. Meltzer AC, Pines JM, Richards LM, et al. US emergency department visits for adults with abdominal and pelvic pain (2007-13): trends in demographics, resource utilization and medication usage. *Am J Emerg Med.* 2017;35(12):1966-1969.
3. Brewer R, Golden F, Hitch D, et al. Abdominal pain: an analysis of 1,000 consecutive cases in a university hospital emergency room. *Am J Surg.* 1976;131(2):219-223.
4. King KC. Myth in Medicine.WJM Volume 172 March 2000
5. Deaton T, Auten JD, Darracq MA. Nebulized fentanyl vs intravenous morphine for ED patients with acute abdominal pain: a randomized double-blinded, placebo-controlled clinical trial. Am J Emerg Med. 2015;33(6):791-795.
6. Motov S. Diminishing Pain. EPMonthly. https://epmonthly.com/article/diminishing-the-pain/
7. Herring AA, Stone MB, Nagdev AD. Ultrasound-guided abdominal wall nerve blocks in the ED. *Am J Emerg Med*. 2012;30(5):759-64.
8. Ciesewski D. Pain Profiles: 'TAP IN' – Transverse Abdominus Plane (TAP) Blocks. http://www.emdocs.net/pain-profiles-tap-in-transverse-abdominus-plane-tap-blocks/ 2019

9. Mahmoud S, Miraflor E, Martin D, Mantuani D, Luftig J, Nagdev AD. Ultrasound-guided transverse abdominis plane block for ED appendicitis pain control. Am J Emerg Med. 2019 Apr;37(4):740-743. doi: 10.1016/j.ajem.2019.01.024. Epub 2019 Jan 26. PMID: 30718116.
10. Tsai HC, Yoshida T, Chuang TY, Yang SF, Chang CC, Yao HY, Tai YT, Lin JA, Chen KY. Transversus Abdominis Plane Block: An Updated Review of Anatomy and Techniques. Biomed Res Int. 2017;2017:8284363. doi: 10.1155/2017/8284363. Epub 2017 Oct 31. PMID: 29226150; PMCID: PMC5684553.
11. Clattenburg EJ, Nguyen A, Yoo T, Flores S, Hailozian C, Louie D, Herring AA. Intravenous Lidocaine Provides Similar Analgesia to Intravenous Morphine for Undifferentiated Severe Pain in the Emergency Department: A Pilot, Unblinded Randomized Controlled Trial. Pain Med. 2019 Apr 1;20(4):834-839. doi: 10.1093/pm/pny031. PMID: 29741660.
12. Chinn E, et al. Randomized Trial of Intravenous Lidocaine Versus Hydromorphone for Acute Abdominal Pain in the Emergency Department. *Ann Emerg Med*. 2019;74(2):233-240.
13. Silva LOJ, Scherber K, Cabrera D, et al. Safety and Efficacy of Intravenous Lidocaine for Pain Management in the Emergency Department: A Systematic Review. *Ann Emerg Med*. 2018;72(2): 135-144 e3.
14. Bafuma PJ, Nandi A, Weisberg M. Opiate refractory pain from an intestinal obstruction responsive to an intravenous lidocaine infusion. Am J Emerg Med. 2015 Oct;33(10):1544.e3-4. doi: 10.1016/j.ajem.2015.07.027. Epub 2015 Jul 21. PMID: 26306434.
15. Tran BW, Dhillon SK. Continuous Intravenous Lidocaine as an Effective Pain Adjunct for Opioid-Induced Bowel Dysfunction: A Case Report. A A Pract. 2019 Nov 1;13(9):335-337. doi: 10.1213/XAA.0000000000001071. PMID: 31361664; PMCID: PMC6818990.
16. Roldan CJ, Chambers KA, Paniagua L, et al. Randomized controlled double-blind trial comparing haloperidol combined with conventional therapy to conventional therapy alone in patients with symptomatic gastroparesis. Acad Emerg Med. 2017;24(11):1307-1314.
17. Witsil JC, Mycyk MB. Haloperidol, a novel treatment for cannabinoid hyperemesis syndrome. Am J Ther. 2017;24(1):e64- e67
18. Valdovinos EM, Frazee BW, Hailozian C, Haro DA, Herring AA. A Nonopioid, Nonbenzodiazepine Treatment Approach for Intractable Nausea and Vomiting in the Emergency Department. J Clin Gastroenterol. 2020 Apr;54(4):327-332. doi: 10.1097/MCG.0000000000001258. PMID: 31567626.
19. Kum V, Bell A, Fang W, VanWert E. Efficacy of topical capsaicin for cannabinoid hyperemesis syndrome in a pediatric and adult emergency department. Am J

Emerg Med. 2021 Jun 29;49:343-351. doi: 10.1016/j.ajem.2021.06.049. Epub ahead of print. PMID: 34242945.
20. Tsai SL, Fox LM, Murakami M, Tsung JW. Auricular Acupuncture in Emergency Department Treatment of Acute Pain. Ann Emerg Med. 2016 Nov;68(5):583-585. doi: 10.1016/j.annemergmed.2016.05.006. Epub 2016 Jun 8. PMID: 27287548.
21. Jan AL, Aldridge ES, Visser EJ, Rogers IR, Hince DA, Woosey MV, Bulsara MK, Suen LK. Battlefield acupuncture added no benefit as an adjunct analgesic in emergency department for abdominal, low back or limb trauma pain. Emerg Med Australas. 2020 Sep 23. doi: 10.1111/1742-6723.13642. Epub ahead of print. PMID: 32969169.
22. Barnaby DP, Chertoff AE, Restivo AJ, Campbell CM, Pearlman S, White D, Bijur PE, Gallagher EJ. Randomized Controlled Trial of Intravenous Acetaminophen Versus Intravenous Hydromorphone for the Treatment of Acute Pain in the Emergency Department. Ann Emerg Med. 2019 Feb;73(2):133-140. doi: 10.1016/j.annemergmed.2018.06.019. Epub 2018 Aug 14. PMID: 30119941.
23. Chang AK, Bijur PE, Ata A, Campbell C, Pearlman S, White D, Chertoff A, Restivo A, Gallagher EJ. Randomized Clinical Trial of Intravenous Acetaminophen as an Analgesic Adjunct for Older Adults with Acute Severe Pain. Acad Emerg Med. 2019 Apr;26(4):402-409. doi: 10.1111/acem.13556. Epub 2018 Nov 20. PMID: 30118582; PMCID: PMC6378123.
24. Bijur PE, Friedman BW, White D, Wollowitz A, Campbell C, Jones MP, Chang AK, Gallagher EJ. Randomized Clinical Trial of Intravenous (IV) Acetaminophen as an Adjunct to IV Hydromorphone for Acute Severe Pain in Emergency Department Patients. Acad Emerg Med. 2020 Aug;27(8):717-724. doi: 10.1111/acem.13947. Epub 2020 Mar 24. PMID: 32077553.

Pharmacotherapy of Abdominal Pain in the ED

Analgesic Class	Dose	Indications
Opioids	Morphine: 0.05-1 mg/kg IV, SQ 4-6 mg IV (fixed), SQ 0.2 mg/kg -Nebulized 7.5 mg per dose -Oral Fentanyl: 0.25-0.5 mcg IV 25-50mcg IV (fixed dose)	**Yes**: Acute Abdominal Pain, Surgical Abdomen (Traumatic, non-traumatic) **No**: Chronic abdominal pain Gastroparesis Constipation

	1-2 mcg/kg IN 2-4 mcg/kg via Nebulization 100 mcg-buccal tablets Hydromorphone (not a first-line agent due to severe euphoria): 0.25-0.5 mg IV 1 mg IN	Hemodynamic Compromise Potential clinical deterioration
NSAID's	Ketorolac: 10-15 mg IV 10 mg PO (rarely) Diclofenac: 50 mg IV 50 mg rectal suppository Ibuprofen: 400 mg	**Yes:** Biliary Colic Pelvic Inflammatory Disease Mittelschmerz Pain **No:** Acute (Surgical Abdomen), Vascular Catastrophes, Co-morbidities that increase risk of bleeding
Ketamine	0.15-0.3 mg/kg IV over 15-30 minutes 0.15 mg/kg/hr continuous infusion 0.15-0.3 mg/kg SQ over 15-30 minutes IN: 1-1.5 mg/kg Nebulization: 0.75-1.5 mg/kg	**Yes:** Acute (Surgical Abdomen) Abdominal Pain Chronic Abdominal Pain (Opioid Naïve and Tolerant) Gastroparesis
Lidocaine	**Systemic IV**: 1-1.5 mg/kg over 10-15 minutes Continuous infusion at 1.5-2.5 mg/kg/hr **UGRA-TAP Block:** Lidocaine max 4 mg/kg	Chronic Abdominal Pain Multi-drug resistant acute abdominal pain (SBO) Abdominal wall abscess, laceration, hernia, rectus sheath hematoma

Neuroleptics	Haldol IV: 2-5 mg Droperidol IV: 2.5-5 mg	Cannabis Hyperemesis Syndrome Gastroparesis Chronic Abdominal Pain
Proton Pump Inhibitor	Pantoprazole: 40 mg PO or IV Omeprazole: 20 mg PO or IV	PUD, Gastritis, Esophagitis
Capsaicin Cream	0.075% Topically	Cannabis Hyperemesis Syndrome
Acupuncture (Battlefield)		On case-by-case basis: Multi-refractory chronic abdominal pain
Acetaminophen	1g PO 1g IV	When either none of the above analgesics are unavailable or patient is allergic to everything