Analgesic Patterns and Opioid Administration in Children Hospitalized with Acute Pancreatitis

PANCREASFEST 2022 MEETING

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IRINA GORBOUNOVA, MD

SEE WAN THAM, MB BS, MAISAM ABU-EL-HAIJA, MD MS AND TONYA PALERMO, PHD

SEATTLE CHILDREN'S HOSPITAL/UNIVERSITY OF WASHINGTON SCHOOL OF MEDICINE

UW Medicine
SCHOOL OF MEDICINE

Disclosures

None

Background

No pediatric or adult clinical practice guidelines for acute pain management

Opioid prescribing patterns vary

Multimodal analgesia decreases opioid consumption and acute pain severity

Clinical guidelines advocate for multimodal analgesia for post-operative pain

Matta et al. Clin Gastroenterol Hepatol 2020 Wu et al. JAMA 2019 Chen et al. Acta Anaesthesiol Scand 2005
Vittinghoff et al. Paediatr Anaesth 2018

Background

Majority (79%) of adults admitted for AP receive opioids

Opioids prescribed more frequently than non-opioids in pediatric ER

Opioid administration varies by age, sex and race/ethnicity in adults with AP

Increased opioid use during the first 12 hours of admission associated with longer inpatient hospitalization

Goyal et al. Pediatrics 2020 Guedj et al. Front Pediatr 2021 Wu et al. JAMA 2019 Grover AS, et al. JPGN 2018

Aims

Aim 1	Characterize opioid and non-opioid analgesic administration in children during hospitalization for AP
Aim 2	Examine the association of opioid administration with clinical and sociodemographic factors
Aim 3	Explore opioid administration as a risk factor for longer hospital Length of Stay (LOS) after accounting for disease severity and demographic factors

Methods

- **Retrospective cohort study:**
  - Children admitted at Seattle Children's Hospital for AP between 01/01/10 and 10/01/20
- **Inclusion Criteria:**
  - Age: 1 – 21 years old
  - "Index hospitalization" (first hospitalization) of acute pancreatitis (ICD-9 and ICD-10 codes)
  - Cross-verified with lipase 3x Upper Limit Normal
- **Exclusion Criteria:**
  - Chronic pancreatitis
  - Other organic GI disease (celiac disease, IBD)
  - Developmental delay
  - Sickle cell disease
  - LOS >30 days

Measurements

- Demographic and clinical variables
- Common opioid and non-opioid analgesics
- Opioid administration in the first 48 hours (MME48): morphine milligram equivalent (mg/kg)
- LOS: number of days from the time of presentation to the hospital to discharge time
- Multimodal analgesia: acetaminophen + NSAIDs (yes/no)

Results: Patient Characteristics (N=266)

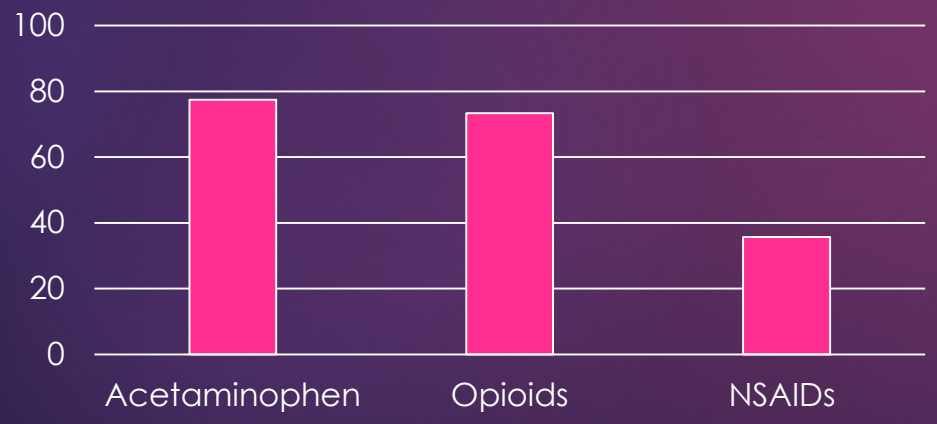
Demographics and Clinical Factors		Mean (SD)/ %
Age at hospitalization (years)		12.1 (4.9)
Female		59.8%
LOS (days)		7.1 (6.8)
Race and ethnicity**	Black, non-Hispanic	7.9%
	Hispanic	24.1%
	Other*	18.1%
	Unknown/Refused	6.4%
	White, non-Hispanic	43.6%
Etiology	Non-Biliary	91.0%
	Biliary	9.0%

*Other - 2 or more races, American Indian & Alaska Native, Asian, Native Hawaiian, and Pacific Islander
**Source: EMR

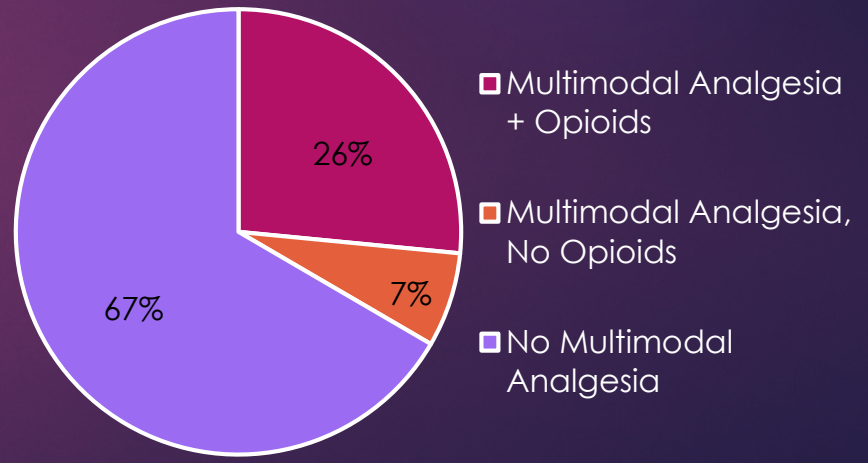
Results

Aim 1: Characterize opioid and non-opioid analgesic administration in children during hospitalization for AP

Percentage of patients receiving common medications while hospitalized for AP



Multimodal analgesia and opioid administration patterns of children hospitalized for AP



Results

Aim 2: Examine the association of opioid administration with clinical and sociodemographic factors

- Pearson correlation did not show an association between **age** and MME48
- T-test and ANOVA did not reveal differences in MME48 by **sex** or by self-reported **race/ethnicity**

Results

Aim 3: Explore opioid administration as a risk factor for longer LOS after accounting for disease severity and demographic factors

Variable	Coefficient	95% CI	p
Age (years)	-0.27	-0.48, -0.05	**0.02**
Sex	-0.99	-3.19, 1.20	0.37
Multimodal analgesia	0.16	-2.07, 2.39	0.89
BUN (mg/dL)	0.03	-0.03, 0.10	0.27
Albumin (g/dL)	-3.47	-4.67, -2.27	**<0.01**
MME48 (mg/kg)	0.61	-0.48, 1.70	0.27

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- Higher opioid administration was not associated with LOS

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Aim 3: Explore opioid administration as a risk factor for longer LOS after accounting for disease severity and demographic factors

- Higher opioid administration was not associated with LOS
- Younger age and lower albumin values were predictors of longer LOS

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Conclusions

Acetaminophen and opioids were the most commonly prescribed analgesics

Only one third were administered multimodal analgesia

Higher opioid administration did not differ by sex, age, or race/ethnicity

Lower albumin and decreased age, rather than higher opioid administration (MME48), were associated with increased LOS in youth with AP

Strengths and Limitations

Large sample size

Retrospective cohort study of a single academic children's hospital

No data on acute pain intensity scores

Limited information on race and ethnicity

Future Directions

- Test the effectiveness of multimodal pharmacologic treatment and impact on AP
- Trajectory of pain in acute pancreatitis (pain measures and relationship to analgesic regimens)
- Determine whether clinical factors such as nutrition support, pancreatitis etiology, and early physical mobilization influence opioid utilization

Thank You

Seattle Children's
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Tonya Palermo, PhD

See Wan Tham, MB BS

Maisam Abu-El-Haija, MD MS

Pediatric Pain & Sleep Innovations Lab

CAPER