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ECHO Idaho: Opioid Addiction and Treatment

Opiates and Chronic Pain: Pediatric Considerations
01/24/2019
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The speaker has no significant financial conflicts of interest to disclose.

Learning Objectives

- How pain assessment and management is different in children (vs. adults)
- Pain assessment in children—how it can be done
- Review non-pharmacologic modalities of pain management in children
- Discuss the importance of preferentially using other medications (especially NSAID's) over opioids for pain in children

Introduction

- Pain assessment and management is different in children (vs. adults)
- In children, especially young children, it can be challenging to identify presence and severity of pain, and then treat the pain.
- Same mechanisms and pathophysiology of pain in children and adults
  - Nociceptive vs. neuropathic
- The experience of pain can be different
  - Contributors to pain can be more powerful (fear, anxiety, missing parent, etc.)

Assessment of Pain

- In children, assessment of the severity of pain is performed by the following two methods:
  - Self-reporting
    - Younger children (~ 3 - 8 years of age) – Some children as young as 3 y.o. can quantify their pain and be able to translate it to a visual analog pain scale based upon a series of faces showing an increase in distress or pain
    - Older children (8+ years of age) – Generally performed using visual analog tools that rate the intensity of pain on a horizontal or numeric scale (eg, 0 to 10 scale).
  - Use of behavioral observational scales in patients who are unable to perform self-reporting
    - Revised Face, Legs, Activity, Cry, Consolability (r-FLACC) tool, Non-Communicating Children's Pain Checklist-Postoperative Version (NCCPC-PV), Nursing Assessment of Pain Intensity (NAPI), Paediatric Pain Profile, Individualized Numeric Rating Scale
- Nonverbal children with neurologic impairment — particularly challenging!
  - Behavior, change in vital signs, etc.

Sucrose for analgesia in newborn infants undergoing painful procedures

Stevens B et al, Cochrane Database of Systematic Reviews 2016, Issue 7. Art. No.: CD001069. DOI: 10.1002/14651858.CD001069.pub5

- Sucrose is effective for reducing procedural pain from single events such as heel lance, venipuncture and intramuscular injection in both preterm and term infants. No serious side effects or harms have been documented with this intervention.

Non-pharmacologic Therapy

- Nonpharmacologic measures are particularly useful in reducing stress and anxiety in children undergoing invasive procedures.
  - Meta-analysis of 39 randomized clinical trials evaluating various psychological interventions for needle-related procedural pain in children — distraction and hypnosis significantly reduced pain and stress (Psychological interventions for needle-related procedural pain and distress in children and adolescents, Cochrane Database Syst Rev. 2013)
- Non-pharmacologic options:
  - Physical measures, such as massage, heat and cold stimulation, and acupuncture
  - Behavioral measures, such as exercise, operant conditioning, relaxation, biofeedback, desensitization, and art and play therapy
  - Cognitive measures, such as distraction, imagery, hypnosis, and psychotherapy

Opioids

- Most commonly used for pain relief following surgery or associated with specific conditions, such as sickle cell disease or cancer.
- For children with acute pain who are opioid naive, short-acting agents are generally preferred over long-acting or extended-release preparations.
- PCA's can be considered at ~13+ years of age and ability to understand, but consider low lockout

Essential Uses of Opioids in Children

- Cancer pain (mucositis and tumor-related)
- Life-limiting illnesses/end of life care, for pain and dyspnea
- Post-operative pain
- Sickle cell acute vaso-occlusive episodes
- Critical illness and mechanical ventilation

Codeine and Tramadol Issues

- Avoid codeine and tramadol in children <12 years because of variability in metabolism that can alter the level of active drug, resulting in reported fatal overdoses in extreme cases.
    - In 2017, the US Food and Drug Administration (FDA) issued warnings and contraindications for the use of codeine and tramadol for pain management in all children <12 years old
    - Data from the adverse event reporting system from 1969 to 2015: 64 cases reported worldwide of respiratory depression associated with codeine use in children, including 24 deaths; 9 reported cases of respiratory depression associated with tramadol use in children, including three deaths.
- In children ≥12 years, caution should be used in prescribing these drugs, particularly in obese patients and those with obstructive sleep apnea or severe lung disease, which may increase the risk of serious breathing problems.
- These drugs should not be used for management of postoperative pain following tonsillectomy and/or adenoidectomy (T&A) in children of any age.

NSAID's vs. Opioids

- Fractures — no difference between morphine and ibuprofen (Poonai N et al, CMAJ December 09, 2014 186 (18) 1358-1363; DOI: https://doi.org/10.1503/cmaj.140907)

- Musculoskeletal injury in ED — no difference between morphine vs. ibuprofen vs. morphine + ibuprofen (Le May S et al, PEDIATRICS Volume 140, number 5, November 2017:e20170186)

- Others…

Opioids and Pediatric Chronic Pain

- Cochrane Systematic Review:

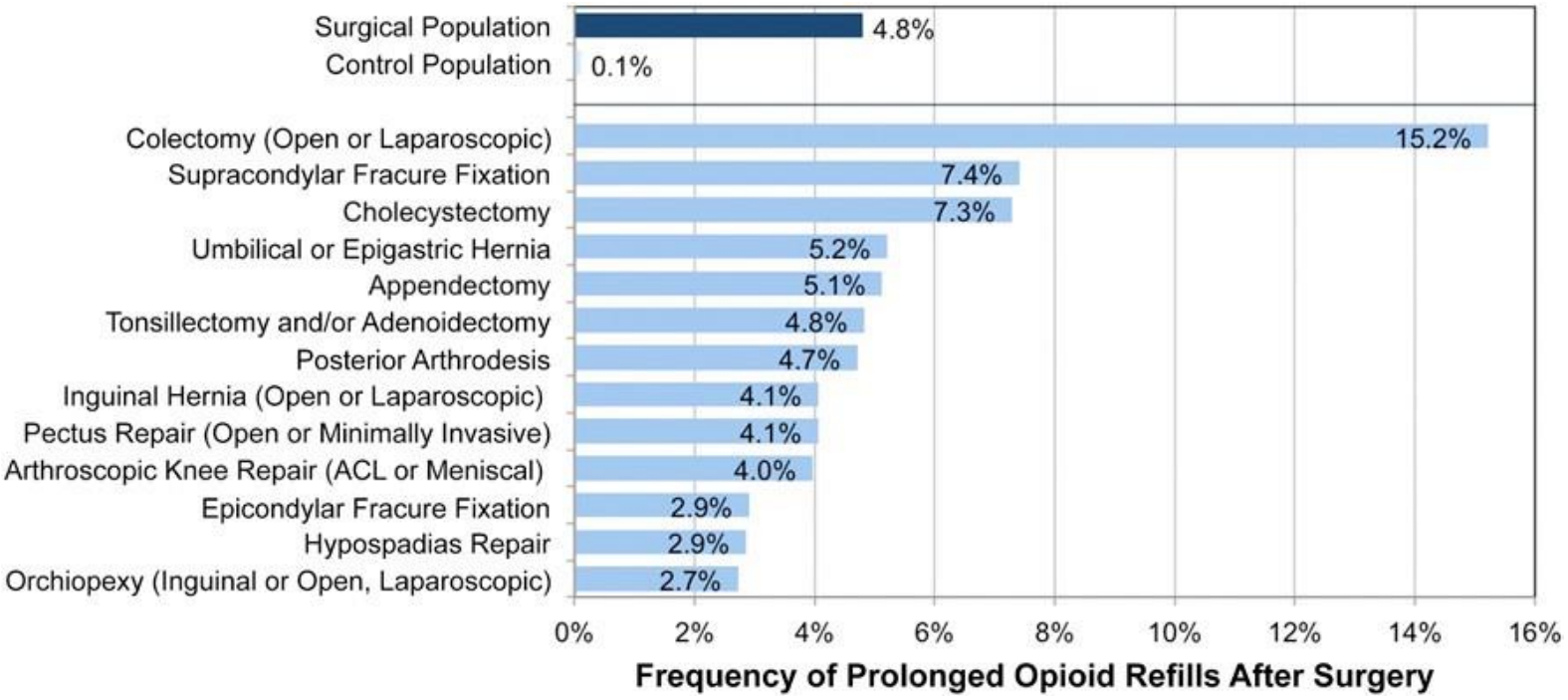
  There was no evidence from randomized controlled trials to support or refute the use of opioids to treat chronic non-cancer pain in children and adolescents (Cooper TE et al, Cochrane Database of Systematic Reviews 2017, Issue 7. Art. No.: CD012538. DOI: 10.1002/14651858.CD012538.pub2)

Persistent Opioid Use Among Pediatric Patients After Surgery

Harbaugh CM et al, PEDIATRICS Volume 141, number 1, January 2018:e20172439

- BACKGROUND: Despite efforts to reduce non-medical opioid misuse, little is known about the development of persistent opioid use after surgery among adolescents and young adults.
- METHODS: Retrospective cohort study using commercial claims from the Truven Health Marketscan research databases from January 1, 2010, to December 31, 2014.
  - Included opioid-naive patients aged 13 - 21 years who underwent 1 of 13 operations.
  - A random sample of 3% of nonsurgical patients who matched eligibility criteria was included as a comparison.
  - Primary outcome was persistent opioid use, which was defined as ≥ 1 opioid prescription refill 90 - 180 days after the surgical procedure.

- RESULTS: Among eligible patients, 60.5% filled a postoperative opioid prescription (88 637 patients).
- Persistent opioid use was found in 4.8% of patients (2.7%–15.2% across procedures) compared with 0.1% of those in the nonsurgical group



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Prescription Opioids in Adolescence and Future Opioid Misuse

Miech R et al, PEDIATRICS Volume 136, number 5, November 2015

- METHODS: Prospective, panel data come from the Monitoring the Future study, a nationally representative sample of 6,220 individuals surveyed in school in 12th grade and then followed up through age 23.
  - The main outcome is non-medical use of a prescription opioid at ages 19 to 23.
- RESULTS: Legitimate opioid use before high school graduation is independently associated with a 33% increase in the risk of future opioid misuse after high school.
  - This association is concentrated among individuals who have little to no history of drug use and a strong disapproval of illegal drug use at baseline.
- CONCLUSIONS: Use of prescribed opioids before the 12th grade is independently associated with future opioid misuse among patients with little drug experience and who disapprove of illegal drug use.

Neurologically Impaired Children

- In nonverbal children with neurologic impairment who present with apparent pain, an assessment for these causes is appropriate.
- If no treatable cause is identified, an empirical trial of gabapentin therapy can be initiated.
  - Gabapentin can be beneficial in these children because it targets visceral hyperalgesia and central neuropathic pain.
- Other medications that can improve comfort in such children include tricyclic antidepressants, clonidine, and opioids.

Additional Considerations

- Certain non-opioid / non-NSAID medications work better for certain pain syndromes (neuropathic, functional abdominal pain, specific headache syndromes, etc.)
- Child Life
- Pain specialist or palliative care

Neonatal Abstinence Syndrome

- Not “pain in children,” but too often a result of pain in children.
- Very challenging and costly
- Long-term neurobehavioral, educational, and disability effects / costs

Key Points

- Pain assessment in children can be challenging
- Pain in children can and should be managed
  - Maximize non-pharmacologic modalities
  - Use NSAID's preferentially over opioids—NSAID's alone will work in most non-surgical and non-cancer circumstances

- QUESTIONS???