LOYOLA UNIVERSITY HEALTH SYSTEM
Loyola University Chicago

Illinois Emergency Medical Services for Children

Illinois Department of PUBLIC HEALTH

Pediatric Pain Management in the Emergency Department Slide Show

Illinois Emergency Medical Services for Children
is a collaborative program between the
Illinois Department of Public Health and
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www.luhs.org/emsc

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PEDIATRIC PAIN MANAGEMENT

Children and Pain

- Unrelieved pain in infants and children has detrimental effects
  - Physiological
  - anatomical
  - behavioral

- Studies have shown that after intense painful procedures, children report long-term sequelae ----- resembling post-traumatic stress syndrome.

Barriers and Misconceptions

- Infants and children do not feel pain like adults
- Lack of assessment and reassessment of pain
- Fears of side effects (respiratory problems and addiction)
- Pain "builds character"
- Children unable to tell where it hurts
- Children do not tell the truth

Pain Response Conduction

Pain fibers

- A-delta
  - large, myelinated and fast conducting
- C-fibers
  - small, unmyelinated and slow-conducting

Pain impulse transmission in neonates

- Occurs along nonmyelinated C-fibers
- Less precision in pain signal transmission exists in the spinal cord
- Descending inhibitory neurotransmitters are lacking

What does that mean?

- Young infants may perceive pain more intensely than older children or adults because their descending control mechanisms are immature

- This limits their ability to modulate the pain experience

Pain responses

- tachycardia
- tachypnea
- increased blood pressure
- increased release of catecholamines
- increased release of glucagon
- increased release of corticosteroids

What else has the same symptoms???

Anxiety/ Fear

Respiratory distress

(How will you know which is which??)

Interventions

Anxiety/ Fear

- Develop a nurse/ patient relationship using the patient's growth and development level and good communication techniques

Respiratory distress

- IV/ O2/ assessment/appropriate interventions

Pain

- Appropriate pain relief for age and weight

QUESTT Scale
(Baker and Wong 1987)

- **Q**uestion the child
- **U**se pain rating scales
- **E**valuate behavior
- **S**ecure parent involvement
- **T**ake pain into account
- **T**ake action

INFANTS

- Gold standard--FACIAL expression
  - eyes forcibly closed
  - brows lowered and furrowed
  - nasal roots broadened and bulged
  - deepened nasolabial furrow
  - square mouth
  - cupped tongue

Infants – Pain Scales

- CRIES – Crying, Requires O_2 for saturation > 95%, Increased VS, Expression, Sleeplessness
- FLACC – Faces, Legs, Activity, Cry, Consolability
- NIPS – Neonatal Infant Pain Scale
- SUN – Scale for Use in Newborns

KUDO

By 18 months of age, most children have a word for pain

ie:

- hurt, owie, boo boo, ouch
- even just NO

Toddlers and Pre-Schoolers

- Examiner should ask what word the child uses to identify they are in pain and then use the same term when talking with the child

- Most indicative are:
  - cry
  - facial expression
  - verbalizing
  - movements of torso and extremities
  - touching of the wound

Toddlers and Pre-Schoolers Pain Scales

- CHEOPS – Children's Hospital of Eastern Ontario Pain Score
- FLACC – Faces, Legs, Activity, Cry, Consolability
- Oucher Scale – Combines pictures with a Visual Analog Scale (VAS)

School Age and Adolescents

- Can communicate pain in more abstract terms
- Can respond to direct questioning
- Appropriate pain scales
  - FACES scale
  - Numeric scale

Children with Cognitive Impairment

- Vocal behavior
  - moaning, crying, screaming
- Social behavior
  - not cooperating, withdrawn, difficult to distract
- Facial expression
  - furrowed brow, changes in eyes, clenches or grinds teeth, thrusts tongue out
- Activity
  - not moving, quiet, agitated, fidgety
- Physical signs
  - changes in color, perspiring, sharp intakes of breath, gasping
- Body and limbs
  - stiff, spastic, tense, rigid

Cultural/ Religious/Racial Ethnic Influences

- Major influence on how pain is perceived and reacted to

- Western culture
  - "No pain/ no gain"
  - "Pain is good for the soul"

- Minority disparities

- Be aware of differences!!

Pharmacologic Interventions

- Mild pain
  - Acetaminophen
  - NSAIDS
- Moderate to severe pain
  - Opioids
  - Non-opiods
  - Local/topical anesthetics

Routes of administration

PO

- preferred if possible/ slower pain relief

Topical

- pretty much pain free/ slower pain relief

IM

- Not preferred, and involves that pesky needle each time

IV

- rapid pain relief; easy route once initial insertion occurs; well tolerated
- PCA pumps give children control over their pain

Meperidine
(Demerol)

IMPORTANT INFORMATION:

- *"Meperidine (Dermerol) should not be administered to children as it has been demonstrated that meperidine has an active metabolite, normeperidine that has NO analgesic properties but can cause central nervous system excitability and lead to seizures"*
- *The metabolite builds up as more medication is given*

OPIOIDS
(most commonly used)

- Codeine
  - (not recommended for children under <2)
- Hydrocodone
- Morphine
- Fentanyl
- Oxycodone (+APAP, Percocet)
  - (not recommended for children <6)
- Hydro-morphine (dilaudid)

Non-opioid Analgesics

Acetaminophen

- 10-15 mg/kg q 4-6 hours PO/ PR (max dose 75 mg/kg/day)

Ibuprofen

- 5-10 mg/kg q 6-8 hours PO (max dose 40 mg/kg/day)

Ketorolac

- 0.5 mg/kg q 6 hours IM, IV, PO
  - (max dose 30 mg/q 6 hours)
  - do not use with other NSAIDS

Local Anesthetics

- EMLA
- LAT
- LIDOCAINE

Procedure

- Patient is triaged
  - VS/ wt/ head circumference <2 years /pain scale
- Physical assessment
  - System focused/ assess need for pain meds
- Pain medication
  - Type and route
- Re-assessment
  - IV/ IM--re-assess in 15 minutes
  - Rectal--re-assess in 45-60 minutes
  - PO--re-assess in 60 minutes

Non-pharmacutical interventions

Age Group	Classification
Neonate/ infant	Sensory
Toddler	Sensory
Preschooler	Sensory/ Behavioral
School Age	Sensory/ Behavioral/ Cognitive
Adolescent	Sensory/ Behavioral/ Cognitive

Techniques

Neonate/ infant

- positioning
- swaddling
- rocking/ cuddling
- touch/ massage
- dim lighting
- visual distraction
- sucking
- sucrose/ water solution on pacifier

Techniques

Toddler

- distraction devices (toys/ music/ videos
- security object (blanket/ toy/ stuffed animal)
- pacifier
- touch/ massage
- hugging/ holding
- imagery
- play
- positioning
- heat/ cold application

Techniques

Preschooler

- distraction devices (toys, games, books,videos, stories)
- guided imagery
- massage
- play therapy
- hugging/ holding
- positioning
- heat/cold application

Techniques

School age

- heat/ cold application
- touch/ massage
- play therapy
- humor
- distraction devices (music/videos/breathing techniques)
- positioning
- exercise
- hugging/ holding
- imagery

Techniques

Adolescent

- imagery
- heat/ cold application
- relaxation techniques
- humor
- breathing techniques
- prayers
- distraction (especially music/ videos)
- positioning

Documentation issues

Important to note in your documentation what type of therapy is used

- Usually a combination of pharmaceutical/ non-pharmacutical is utilized
- Also, be sure to document each type of intervention and the time of each intervention

Approach tips

- Approach the child at or below their eye level

- Give choices
  - IV in left or right arm
  - Which ear should I look at first for you

- When communicating
  - simple, short information/questions
  - allow time for child to respond

Institutional responsibilities

"The institutional process of acute pain management begins with the affirmation that children should have access to the best level of pain relief that may be safely provided."

Take Home Points

- Become knowledgeable about pediatric pain management principles
- Provide a calm environment for painful procedures
- Use appropriate assessment tools and techniques
- Anticipate painful experiences
- Involve families in creating solutions for their child's pain

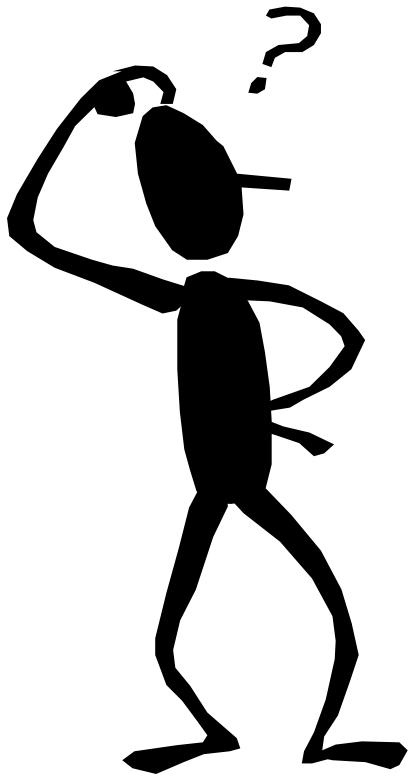
What can you make available in the ED

- TV
- Videos
- Books
- View master
- Poison coloring activity books/crayons
- Nintendo

Resources

- American Academy of Pediatrics
- American Pain Society
- Pain scales
- Resources in Pediatric Pain Management in the ED educational module
  - EMSC Flow Chart for Pain Management
  - Opioid handout
  - Non-opioid handout
  - Topical anesthetic handout
  - "Ten Ways Parents Can Ease the Pain" handout

Questions/ Comments



Acknowledgements

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