Advanced Multimodal Analgesia for Children in Pain: From Integrative Medicine to Mind-Body Techniques

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Learning Objectives

- Explore how integrative medicine strategies can treat or prevent pain in children
- Observe 2 pediatric case examples demonstrating concurrent use of medications and integrative therapies
- Practice Acupressure Point P6
Integrative Medicine

- “Alternative” implies either – or…
- “Complementary” implies primary and secondary
- “Integrative Medicine” is more inclusive
- Better fit with a pediatric pain care model

Offers a range of modalities
- “non-pharmacological” vs “non-psychological”…?

Non-Pharmacological Treatment

This is why you shouldn’t believe that exciting new medical study

Evidence: Safety vs. Efficacy

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Weiger et al, 2002, Annals Internal Medicine
Integrative modalities

- **Integrative modalities effective in management of pediatric pain**

- **include**
  - hypnosis
  - guided imagery
  - yoga
  - acupuncture
  - massage
  - biofeedback

Integrative Pain Management

State of the art pain management in the 21st century demands that pharmacological management must be combined with supportive and integrative, non-pharmacological therapies to manage a child’s pain.

- **Physical methods** (e.g. cuddle/hug, massage, comfort positioning, heat, cold, TENS)
- **Cognitive behavioral techniques** (e.g. guided imagery, hypnosis, abdominal breathing, distraction, biofeedback)
- **Acupuncture, acupressure, aromatherapy**

Nociceptive Pathways & Primary Sites of Action of Analgesics

- **Thalamus**
- **NSAIDs**
- **Acetaminophen (Paracetamol)**
- **Injury**
6-year-old Cassandra with severe pain due to chest tube insertion
Fentanyl PCA “the pump” and blowing bubbles “going to bubble land”

Nociceptive Pathways & Primary Sites of Action of Analgesics

How does this stuff work...

- Distraction significantly increased activation of cingulo-frontal cortex including orbitofrontal & perigenual anterior cingulate cortex (ACC), as well as periaqueductal gray (PAG) & the posterior thalamus.
- Active distraction techniques, such as imagery, appear to modulate endorphine release in the midbrain, including the periaqueductal grey and thereby increase activity of descending inhibiting pathways thereby decreasing nociception from the dorsal horn resulting in gate pain modulation during distraction...
Psychology Intervention

- **Postoperative Pain - Systematic Review**

- Psychological interventions effective in reducing children’s self-reported pain in short term

- Distraction/imagery interventions effective

- Preparation/education interventions not effective

Brain Regions that Modulate Pain and Emotion

- Somatosensory Cortex
- Insular Cortex
- Thalamus
- Hippocampus
- Amygdala
- Prefrontal Cortex
- Anterior Cingulate Cortex

- Both
- Pain

Images with Permission: Barry Cole, Bob Dworkin, Roy Freeman, Charles Argoff, Howard Fields
Nociceptive Pathways & Primary Sites of Action of Analgesics

Injury

CORTEX:
Stress
- Anxiety
- Catastrophizing
- Depression
- perceived injustice
- disturbed Sleep

"ON"

Thalamus

"OFF"

Integrative (non-pharmacological) therapies

Opioids

Acetaminophen (Paracetamol)

NSAIDs

Integrative Pain & Symptom Management


**Aromatherapy**

- Diluted in carrier oils and applied topically
- Placed on a cotton ball and inhaled
- Used with a variety of diffusion devices
- Added to steaming water and inhaled
- Select oils are available orally

**Aromatherapy**

- **Lavender** (Lavandula angustifolia)
- **Lemon** (Citrus limon)
- **Peppermint** (Mentha piperita)
- **Spearmint** (Mentha spicata)
- **Sweet orange** (sweet orange)

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**Nausea & Vomiting**

**Acupressure, Acupuncture**

- P6 point (or "inner gate"): 2 or 3 finger widths down from the top crease in the wrist, centered in the groove between the two large tendons.
- Take thumb and index (or middle finger) and press firmly on the points on both sides of the wrist when nauseous; relief in 10-30 seconds (may take up to five minutes)
Let’s have a closer look at this “Hypnosis”…

What is Self-Hypnosis?

- Altered state of consciousness
- Increased attention leads to an openness to suggestion
- Therapist guides the child’s stream of consciousness
- Adjunct
- Goal: gives the child a sense of mastery and control of symptoms
Misconceptions

- Being asleep or unconscious
- Loss of Control
- “Magic” or “put under a spell”
- Revelation of secrets
- Not being de-hypnotised

Address child’s and parents’ fears / concerns!

Phenomena of Hypnosis

- Relaxation
- Increased Suggestibility
- Dissociation
- Anesthesia
- Ideomotor responses
- Post-hypnotic suggestion
- Self-hypnosis

Do You Want to Go to Your Favorite Place?
Conclusions

- Withholding evidence-based analgesia to children in pain is not only unethical, but causes immediate and long-term harm.
- Effective & safe integrative modalities can be easily taught and integrated into clinical practice.
- Distraction, massage, aromatherapy, biofeedback, self-hypnosis appear to be highly effective in therapy of acute and chronic pain.
- Use multimodal (opioid-sparing) analgesia: Multiple agents, interventions, rehabilitation, psychological and integrative therapies act synergistically for more effective pediatric pain control with fewer side effects than single analgesic or modality.

Recommended Reading
Further Links

- Video: Kiran Stordalen and Horst Rechelbacher Pediatric Pain, Palliative and Integrative Medicine Clinic Tour https://vimeo.com/122654881
- Short Movie: Meet the Interdisciplinary Chronic Pain Clinic Team at Children’s Minnesota LittleStars TV https://www.youtube.com/watch?v=134xk81hHc0
- Video: Tour of the Kiran Stordalen and Horst Rechelbacher Pediatric Pain, Palliative and Integrative Medicine Clinic at Children’s Hospitals and Clinics of Minnesota and an overview of the three programs that are offered at Children’s under this clinic. https://vimeo.com/123357294
- Short Movie: LittleStarsFilm Kali’s Story - Beyond the NICU: This amazing pediatric palliative care short movie (7 min) features 8-year-old Kali’s journey at Children’s Hospitals and Clinics of Minnesota from NICU to today, receiving care by the Pain & Palliative & Integrative Medicine program while inpatient, in the clinic, and at home (Jun 22, 2015) http://www.littlestars.tv/short-films/beyond-the-nicu

Unintended Consequences of Integrative Medicine…?

Further Training

Contact: CIPPC@ChildrensMN.org

11th Annual Pediatric Pain Master Class
- Minneapolis, Minnesota, USA | June 9-15, 2018 http://tinyurl.com/PedsPMC

Education in Palliative & End-of-life Care [EPEC]: Become an EPEC-Pediatrics Trainer
- September 2018 http://tinyurl.com/EPECPeds

12th International Symposium on Pediatric Pain (ISPP)

Thank You