Multimodal and Integrative Approaches to Pain Management from Neonates to Adolescents

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Conflict of Interest Disclosure
Sharon Wrona’s Conflicts of Interest
– No Conflict of Interest – nothing to disclose

Any views or opinions in this presentation are solely those of the author/presenter and do not necessarily represent the views or opinions of the American Society for Pain Management Nursing.

Objectives
• Identify age appropriate multimodal and integrative treatment options for pain management in the pediatric population.
• Identify techniques and treatment options which can be used for procedural pain management.
• List evidence-base resources for families and practitioners for multimodal and integrative care in the pediatric population.
Over the past decade there has been an increase in the awareness and use of integrative and complementary therapies in the United States.

How up to date do you feel you are on these types of modalities?

Knowledge, Attitudes, and Use of Complementary and Alternative Therapies Among CNS in an Academic Medical Center

CNS Personal Use
- Humor
- Massage
- Spiritual/prayer
- Music therapy
- Relaxed breathing

Top Therapies Requested by Pts.
- Massage
- Spiritual/prayer
- Healing touch
- Acupuncture
- Music therapy

Ethics of CAM in Children
- Beneficence
  - Integrative programs
- Nonmaleficence
  - Protect patients from harm
- Patient Autonomy
  - Right of the individual to make free and informed decisions
- Recognition of medical pluralism
  - Moral commitment to openness and a commitment to innovative ways of finding evidence
- Public accountability

Cutshall, S., et al. (2010)

Vohra & Cohen (2007)
Factors associated with use of CAM in children

- Affluent, well-educated families
- Parents use CAM
- Chronic illness, e.g., abdominal pain, anxiety, arthritis, cancer, headaches, depression
- Teenagers more than pre-adolescents

Even before babies are able to crawl there are many different approaches which can be taken to minimize or help with pain.
Kangaroo Mother Care

Colic

- Individualized treatment is important
  - Mind-body therapy
  - Infant massage
  - Botanically based therapies
  - Nutritional modulations
  - Probiotics


Pain Management Options for Procedures
Circumcisions

- Circumcised boys demonstrated a stronger pain response than non-circumcised boys during their 4 and 6 month immunizations (Taddio et al, 1997).

- Pain management options
  - Dorsal penile nerve blocks (DPNB)
  - Eutectic mixture of analgesics
  - Sucrose
  - Combination


Immunizations

http://www.youtube.com/watch?v=KgBwVSYqfps

Please share this video with colleagues, family, and friends

http://www.youtube.com/watch?v=KgBwVSYqfps

Also visit our website to learn more:
pediatric-pain.ca/

Centre for Pediatric Pain Research

#itdoesnthavetohurt
Topical Anesthetics

Topical anesthetics creams, gels, and patches can be used for needle procedures.

Topical Devices

Topical devices can provide natural pain relief using various mechanisms. Several of them work on the Gate-Control Theory.

Buffered Lidocaine

- Needle-Free Injection System is a revolutionary way of delivering medication into the subcutaneous without the use of needles.

Unlike a needle which pierces the skin, this device uses pressurized gas to propel medication through the skin and into the subcutaneous within a fraction of a second. This provides for a quick and broad dispersion of medication throughout the sub-Q. After injection, the device can simply be discarded as with normal needle disposal.

http://www.jtip.com/products.html
Positioning for Comfort

**Purpose:** to provide comfort with the least threatening position for the pt. during a procedure with the assistance of a support person.

- Utilize a caregiver is ideal over staff
- Utilized for all ages and procedures

Distraction

**Purpose:** to draw the attention away from a stressful occurrence and redirect their focus on something else.

- Promote coping and decrease anxiety
- Focus on senses (visual, audio, and tactile)
- Developmentally and age appropriate
- Patient’s interests
Praise and Encourage

**Purpose:** to provide positive reinforcement of desired behaviors and encouraging follow through of their role assignment.

- Validation of feelings, thoughts and behaviors
- Completion of task
- Positive experience

Infants (birth – 12 mos.)

- Have primary caregiver present when possible for preparation/information and providing comfort measures during procedure
- Positioning for comfort: swaddling or holding
- Distraction: comfort object like pacifier, blanket, singing, favorite toy, soft music, soft touch/massage, mobile, cause and effect items
- Praise and encouragement: soft tone and encouraging words for both pt. and caregiver

Toddler (12mo. – 36mo.)

- Have primary caregiver present when possible for preparation/information and providing comfort measures during procedure
- Use developmentally appropriate language/tone
- Utilize Medical Play for visual teaching
- Positioning for comfort: hug/lap hold, sitting up
- Distraction: comfort object like blanket, stuffed animal, toy, pacifier or soft music, cause and effect items, bubbles, pop-up books
- Praise and encouragement: soft tone and encouraging words for both pt. and caregiver
Early Childhood (3–6yr)

- Have primary caregiver present when possible for preparation/information and providing comfort measures during procedure
- Use developmentally appropriate language/tone
- Utilize Medical Play for visual teaching
- Positioning for comfort: hug/lap hold, sitting up
- Distraction: comfort object like blanket, stuffed animal, toy, or soft music, cause and effect items, bubbles, pop-up books
- Praise and encouragement: soft tone and encouraging words for both pt. and caregiver

***Offer Choices when Available***

School Age (6-12 yr.)

- Have primary caregiver present when possible for preparation/information and providing comfort measures during procedure
- Use developmentally appropriate language/tone
- Utilize Medical Play for visual teaching
- Positioning for comfort: hug/lap hold, sitting up, arm placement (allow pt. to choose)
- Distraction: comfort object, breathing techniques, TV, soft music, bubbles, guided imagery, counting, games, “I SPY”
- Praise and encouragement: soft tone and encouraging words for both pt. and caregiver

***Offer Choices when Available***

Adolescence

- Have primary caregiver present when possible for preparation/information and providing comfort measures during procedure
- Use developmentally appropriate language/tone
- Utilize Medical equipment/books for visual teaching
- Positioning for comfort: sitting up, arm placement
- Distraction: comfort object, breathing techniques, counting, guided imagery, music, games, conversation, magazines, TV
- Praise and encouragement: encouraging words for both pt. and caregiver

***Offer Choices when Available***
Integrative Care Therapies and Pain in Hospitalized Children and Adolescents

- Children and adolescents treated primarily for pain and anxiety
  - Retrospective chart review
    - Measured pre/post pain and relaxation scores
  - Intervention
    - Massage and healing touch
  - Results
    - Mean pain and relaxation scores decreased significantly from pre to post (p<.001)

Cotton, S., et al. (2014)

Treatment Options for Chronic Pain in Children: Complementary Therapies

The National Institute of Health (http://ncbi.nlm.nih.gov) identifies many different CAMs:

- Meditation, yoga, Acupuncture, deep breathing, progressive relaxation, guided imagery, hypnotherapy, qi gong and Tai Chi.
- Spinal manipulation and massage therapy as well as the movement therapies of Feldenkrais, Alexander technique, Pilates and Rolfing
- Whole body techniques such as Ayurvedic and traditional Chinese medicine
- Equine Assisted therapy is available for therapeutic horseback riding.
- Music Therapy

Hypnosis

- Used to encourage person’s focus of attention to inner experiences
  - Found to be effective in
    - Reducing pain and anxiety with procedures
    - Recurrent headaches
    - Abdominal pain, IBS
    - Chemotherapy-related distress
    - Improve QOL for children with asthma and Cystic Fibrosis
    - Insomnia
    - Habitual disorders

“Magic Glove”

Massage Therapy

• A form of treatment that uses varied types of touch on the whole body or specific areas of the body for healing, relaxation, pain reduction, and relief of stress and anxiety.
  • The types of massage therapy include Swedish Massage, Manual Lymphatic Drainage, Cranial Sacral Therapy, Myofascial Therapy, and Healing Touch.

Massage

• Massage Therapy: Basic Strokes* (Preschool through Adult)

  • Before You Begin
    – Start by making your child feel comfortable and warm. Choose a quiet place and dim the lights. If possible, play some soft music. If your child seems uneasy, you can start and ask your child to follow. This gives your child a good way to see what you are planning to do and you get to relax, too.
    – You can ask your child to take a big deep breath in through the nose. Keeping both of his hands on his belly, have him try to make the belly feel like it is filling up like a balloon. Then ask him to breathe out through the mouth.
  • Stretching
    – Have your child stretch in any way that feels comfortable (hands and arms overhead, legs long and stretched, etc.). This may help your child begin to relax, since stretching helps to increase blood flow and remove muscle tension.

Information taken from Massage Therapy: Basic Strokes Helping Hands at Nationwide Children’s Hospital, Copyright 2006
*Some material was adapted from Massage for Healthier Children, Marybetts Sinclair, Wingbow Press, 1992.
Massage

Face

With the index and middle fingers, trace above the eyes on the eyebrows and below the eyebrows by the cheekbones. Repeat 3 to 5 times.

With the index finger of one hand on either side of the nose, slide your fingers towards the top of the forehead to the hair/scalp line. Repeat 3 to 5 times.

Arms

With the palms of your hands, use gentle but firm pressure and make long strokes down the arms, from the shoulder to the hand. (To increase blood flow, begin at the hand and move upward from the hand to the shoulder.) Repeat each arm 5 times.

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Some material was adapted from Massage for Healthier Children, Marybetts Sinclair, 1992.

Hands

With the fingers and palm of your hands, take each hand and press the top and bottom hand together. Repeat 5 times.

With the fingers on the bottom of your child's hand and your thumbs and the sides of the palms on the top of your child's hand, gently knead the hand using a rolling-like motion. Repeat each hand 5 times.

Chest

Stand at your child's side, and place your hands by the shoulders. With your right hand, glide just a few inches. Move your right hand back to the starting position while your left hand glides over the same area. While using one hand after the other, you will begin to feel warmth. The size of your child's chest will determine how far each stroke can go. Cover the top of the chest and the area between the ribs. Keep your hands soft so they can glide smoothly over the ribs. Use gentle pressure. Repeat 10 times.

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Some material was adapted from Massage for Healthier Children, Marybetts Sinclair, 1992.

Belly

Massage your child's entire belly, especially the top of the belly. Be careful to stay within the area below the ribs and above the belly button. Start by slowly making contact using the pads of your right hand. With your fingers pointing toward the head, make clockwise circles covering the entire belly. After a few circles, have your left hand join in, so they are both moving one after the other making clockwise circles. Use gentle pressure. Repeat 5 to 10 times.

Legs

Use firm pressure with the whole palms of your hands. Make long, slow strokes down the legs, from the hip to the ankle. (To increase blood flow, begin at the ankle and move upward from the ankle to the hip.) Repeat 5 times for each leg.

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Massage

Feet
With the fingers and palms of your hands, take each foot, one at a time, and press the top and bottom together. Use firm pressure. Repeat 5 times.

With your fingers on the bottoms of your child’s feet and the thumbs and sides of your palms on the top and sides of the feet, gently strode the foot using a rolling-like motion. Repeat each foot 5 times. Now turn over or have your child turn over on his belly, lying face down. Make sure he is comfortable and warm.

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Neck
Use a “thumb over thumb” motion to massage the muscles of the upper back between the spine and the shoulder blades, on both sides of the neck to just next to the spine and over the shoulders. Repeat 3 to 5 times.

Information taken from Massage Therapy: Basic Strokes Helping Hands at Nationwide Children’s Hospital, Copyright 2006. Some material was adapted from Massage for Healthier Children, Marybeth Sinclair, Wingbow Press, 1992.

Massage

Back
Start by massaging next to the spine from the lower back to the base of the skull. Put your hands on either side of the spine, starting at the lower back. With the fingertips of each finger working together, use gentle pressure making circles next to each area of the spine up to the base of the skull. Next, starting at the lower back, place palms facing up toward the head. Make small circles with the whole palms of the hand, gradually increasing the size of the circles to cover the entire back. End by smoothing the skin over the shoulders. Repeat 5 times or more. Many children find this especially relaxing and enjoyable.

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Acupuncture, Hypnosis Reduce Chronic Pain in Teens
Acupuncture

• Stimulates the flow of what is known as Qi (pronounced “chee”).
  – Acupuncture treatment is designed to restore the flow and balance of Qi throughout the body so it may heal itself.

Acupressure and Trigger Point Therapy

Acupressure – positive effect on flows of energy throughout the body

Trigger Points - small contraction knots in the muscles of the body

Acupressure Point for Menstrual Distress

Diagram; found on p1000
Yoga

• Evans, et al. (2013)
  – 14 yo girl with gastro-esophageal reflux disease with chest and abdominal pain, vomiting, weight loss, and anxiety.
  – 4 months of Iyengar yoga
    • Improved function
    • Improved abdominal pain
    • Weight gain
    • Improved mood

Coping

• Cognitive Behavioral Therapies
• Relaxation therapy
• Biofeedback
• Stress management
• Coping skills

Focused Breathing

‘Just Relax’... And the BEST way to r-e-l-a-x is to take a nice BIG breath in - you breathe with the child, and breathe OUT with a slow releasing breath.
Biofeedback

• Real-time feedback through various physiological responses
  – Helps the individual with developing awareness of the changes in the body and to learn individualized ways of voluntarily controlling the bodies responses


• Targets factors that are related to pain responses on the body
  – Related to pain exacerbations
  – Related to emotional responses to the pain
  – Helps identifying strategies that are ineffective and effective for reducing pain responses on the body

Kerns, R., Sellinger, J., & Goodin, B. (2011) Evidence of Biofeedback in Children and Adolescents with Chronic Pain

• Banez, G (2008) Study 64 children and adolescents with recurrent abdominal pain
  – Randomly assigned 4 groups for biofeedback
    • Results revealed all groups showed improvements with self reported pain

• Palamaro, T., et al. (2010)
  – CBT, Biofeedback and relaxation clinically significant for reducing pain in children with headaches, abdominal pain and fibromyalgia p<0.0001
Core Components CBT Model for Anxiety with Youth

- **Parent Interventions**
  - Provides parents education regarding the risks of continued avoidance and guidance in managing anxiety
  - Basic parenting strategies
    - Positive/negative reinforcer
    - Planned ignoring
    - Modeling
    - Reward planning

[Link to CBT Model](http://www.effectivechildtherapy.com/sccap/?m=sPro&fa=pro_CBTforAnxiety)

Psychotherapy

- **Cognitive Behavioral Therapy**
  - Inaccurate assessment of perceived environmental dangers.
  - *Identify and replace negative, inaccurate thoughts.
  - Thinking > Feeling > Behaving
  - "Clinical trials have indicated that CBT is an efficacious treatment relative to pill placebo, no treatment, wait-list, and nondirective supportive therapy, and that improvements from CBT are maintained 1 year post-therapy.” (Behar, Dimarco, Hekler, et al. (2009), p.1011)

Balance: Mind-Body-Spirit
Dietary Supplements

• Vitamin B Complex
  – Good for energy and mood
  – Recommend to take in the morning as it may affect sleep
• Vitamin D
  – Essential for efficient utilization of dietary calcium
  – Deficiency causes symmetric low back pain, proximal muscle weakness, muscle aches, and throbbing bone pain elicited with pressure over the sternum or tibia.
  – Recommended Level serum 25-hydroxivitamin D >30 mg per mL

Supplements

• Magnesium
  – Known to block the MNDA receptor
  – Good for chronic pain and migraine headaches prevention
  – Helps with constipation
• Omega 3 Fatty Acid DHA/EPA
  – Competitively inhibit the proinflammatory interleukins, tumor necrosis factor alpha, and the 2 series of inflammatory PGs
Supplements

• Co Enzyme Q10
  – Good for headaches
  – Works on energy pathways
• Melatonin
  – Used to treat insomnia
• Probiotics
  – Probiotics are an effective treatment for diarrhea, lactose intolerance, irritable bowel syndrome, vaginal yeast infections, oral thrush, Crohn’s disease, and ulcerative colitis

Supplements

• Other
  – Peppermint Oil
  – Ginger
  – Green tea
  – Kava
  – Valerian
  – Chamomile
  – Lemon balm
  – Traumeel

Sources for American Academy of Pediatrics guidelines on complementary and alternative medicine and dietary supplements

• Vitamin D:  
• Folic acid:  
• Calcium:  
Herbs used for Psychotropic Effect

- St John’s Wort – for mild to moderate depression
- Valerian – sedative and anxiolytic activity
- Kava – “tranquilizer”, sedative, may be helpful for generalized anxiety disorder
- Lemon Balm – anxiolytic
- Black Cohosh – used for anxiety
- German Chamomile - used for GI spasms, sedative, hypnotic, anxiety

Keltner, N & Folks, D (2005)

Herbs used for Psychotropic Effect

- Evening Primrose – treatment of schizophrenia, childhood hyperactivity, and dementia
- Hops – mild sedative
- Passion Flower – sedative hypnotic for adjustment disorder with anxious mood
- Scullcap – sedative and anticonvulsant
- Ginkgo – treat memory and cognitive impairments with dementia
- Ginseng – treat stress and fatigue
- Melatonin – treat sleep
- Caution - Remember that some supplements may interact with other supplements and herbals.

Keltner, N & Folks, D (2005)

Function

Movement is the Best Medicine
Multidisciplinary and Integrative Pain Management Program

- Outpatient Pain Program
  - Medical Providers
    - MD
    - APN
    - Nurse Clinician RN
  - Psychologist
  - Physical Therapist
  - Massage Therapist
  - Acupuncturist

Resources

- Books
  - The Holistic Pediatrician
  - Mental Health Naturally
  - The Whole Child (Rosen)
  - Integrative Pediatrics (Culbert)

- Articles series
  - Pediatrics in Review (Vohra)
  - Pediatric Clinics of North America 54 (2007)

- Websites
  - NIH NCCAM patient handouts
  - Natural Medicine Comprehensive Database
  - Natural Standard
  - Consumer Lab
  - DOD Total Force Fitness
  - NIH Dietary Supplement Database
  - NIH Office of Dietary Supplements
  - NLM Medicine Plus

Opportunities for the future
Take Home Points

• Many families may be practicing CAM so it is important to ask.
• Integrative therapies should be individualized to each person and situation
• Know where to find resources
• Be open minded to a multimodal approach to care

References