CHRONIC PEDIATRIC PAIN AND USE OF OPIOIDS

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CHILDREN’S HEALTH OF DALLAS
AMERICAN SOCIETY FOR PAIN MANAGEMENT NURSING
HYATT REGENCY COCONUT POINT
BONITA SPRINGS, FLORIDA
SEPTEMBER 28, 2018

CHRONIC (NON-MALIGNANT) PEDIATRIC PAIN AND (ARE THE) USE OF OPIOIDS (REALLY NECESSARY)?

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OBJECTIVES

• Identify the emotional and financial impact pediatric chronic pain has on families and the community
• Review the concept of neuroplasticity and how acute pain becomes chronic
• Explain the interdisciplinary, multimodal approach used in treating the most common pediatric chronic pain complaints
• Recognize the extent of the opioid epidemic and determine if they are indicated for the pediatric chronic, non-malignant pain population
• Review one clinical case and how opioid epidemic will impact clinical practices moving forward
INCIDENCE IN PEDIATRICS

- Current estimates suggest one in four children will have an episode of chronic pain that lasts 3 months or longer

- Average of 10% to 30% of adolescents in a community sample reported having weekly abdominal, headache, or musculoskeletal pains
- Functional abdominal pain accounts for 2 - 4% of all pediatric visits
- Headaches and lower extremity pain are frequent precurors to pediatricians and emergency room visits

MOST COMMON PAIN COMPLAINTS AT CHILDREN’S HEALTH

1) Migraine/chronic headache
2) Amplified musculoskeletal pain
3) Joint pain
4) Back pain
5) Abdominal pain

Anxiety often plays a role in all of these diagnoses
IMPACT ON EVERYDAY LIFE

• Affects quality of life and school attendance
  • decreased participation in recreational activities
• Increase in health care utilization and high costs on the healthcare system
• Impact on Overall Health
  • Increased Risk for the Development of Adult Chronic Pain

1 GROENEWALD ET AL. J PAIN, 2014

FINANCIAL BURDEN ON FAMILY AND COMMUNITY

• $19.5 billion annually in direct and indirect costs for US children/adolescents
  • Top 5% of pediatric chronic pain patients consume 30% of these healthcare costs
  • Institute of Medicine – Focus on prevention, care, education, and additional research
    • ADHD: $24.5-35.7 billion/year, Asthma: $5.7 billion/year
    • Cost of diagnostic exams, hospitalization, doctors' visits, and medications
    • Costs related to taking time off from work, transportation, and additional child care for siblings
  • Childhood chronic pain described as "a modern public health disaster"1

1 CLINCH AND ECCLESTON, RHEUMATOLOGY, 2009

EMOTIONAL IMPACT

• Observed pattern of dysfunctional familial relationships
• Exorbitant stress within the family and child’s life is pervasive
• Family might exhibit unhealthy relationship dynamic
• Psychological enmeshment between parent in child

1 WEISMANN & UZIEL, PEDIATRIC RHEUMATOLOGY, 2016
**EMOTIONAL IMPACT**

- Often consumed with ongoing medical management and appointments
- Parents will often be frustrated due to receiving unnecessary or necessary treatments, procedures, or “ectomies” but still without relief
- Social restrictions and high levels of parenting guilt, anger, depressive symptoms, and anxiety
- In pediatrics, there is a high rate of comorbid psychological disorders

1 WEISMANN & UZIEL, PEDIATRIC RHEUMATOLOGY, 2016

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**ACUTE VS. CHRONIC PAIN**

**ACUTE**
- Immediate threat to body
  - Injury such as broken bones
  - Medical procedure
  - Acute illness such as meningitis
  - Exacerbation of disease such as Crohn’s or sickle cell disease

**CHRONIC**
- Any prolonged pain that lasts longer than 3 months
- OR pain that occurs 3 times within 3 month period
  - Headache, stomach/abdominal, musculoskeletal pain, joint pain are most common complaints

AMERICAN PAIN SOCIETY POSITION ON CHRONIC PAIN, 2009
LONG TERM CONSEQUENCES OF ACUTE PAIN

Potential for Progression to Chronic Pain

- Surgery or Injury Causes Inflammation
- Peripheral Nociceptive Fibers
- Sustained Currents
- Peripheral Nociceptive Fibers
- CNS Neuroplasticity
- Hyperactivity

Woolf et al., Ann Intern Medicine, 2004

NEUROPLASTICITY

- https://vimeo.com/162893705

OPERANT PSYCHOLOGY

- Operant conditioning is a way of learning due to natural consequences of our actions
- Children learn this way everyday

1 CELEDON ET AL (2014)
OPERANT CONDITIONING

- Positive reinforcement
  - Example:
    - Social attention by others to soothe the pain
    - Getting picked up from school because of pain
    - Getting out of chores because of pain

CELEDON et al (2014)

OPERANT CONDITIONING

- Avoidance learning (negative reinforcement)
  - When frequency of a certain behavior increases after that behavior enabled the individual to escape or avoid aversive stimulation
  - Example:
    - Limping, bracing, activity avoidance cause decreased pain sensation
    - The anticipation of pain causes patients to avoid activities and by avoiding the activity they do not experience the pain

CELEDON et al (2014)

GOAL OF MULTIMODAL TREATMENT

- If a child does not develop positive coping strategies these behaviors may develop
- To avoid operant conditioning one must positively reinforce and prompt normative physical activity and arrange the environment such that the patient attempts typical physical activity with minimal self-protective pain behaviors
- The multi-modal approach allows children and family to accept pain as a symptom they can learn to manage, rather than focusing on complete elimination of pain

CELEDON et al (2014)
MULTIMODAL FLOW PROCESS

Improved physical strength/endurance

RETURN TO NORMAL EATING HABITS

• Getting out of the sick role

Address comorbid conditions

Address the anxiety!!

OPTIMIZE FUNCTION

Sleep hygiene

RETURN TO SCHOOL

Go back to school

REQUIRES ALL MEMBER PARTICIPATION, INPUT AND BUY-IN TO BE SUCCESSFUL
**CURRENT STATE OF PAIN MANAGEMENT AT CHST**

- Multidisciplinary Chronic Pain Clinic
  - 3 new patients, 2 days per week
  - 3 Providers on the same day
  - 4 hour appointment
  - 1 hour for each provider
  - 1 hour wrap-up session with all providers, patient, and family
  - Follow up
    - NEW APP for new patient
    - Psychology through our clinic or in the community

- Chronic Abdominal Pain Clinic
  - 3 new patients, 1 day per week
  - Same format as chronic pain clinic
  - GI/HD replaces Physical Therapy portion
  - Patient follows up with either Pain or GI APP based on patient needs

- Chronic Headaches
  - Monday through Friday
  - 1 hour appointments
  - See APP or MD as new patient and follow up

**RESULTS OF MULTIMODAL EXPERIENCE IN DALLAS**

- Quality of life measurements for chronic patients ONLY

- 75% of our NEW pain patients who follow up show improved QOL at their first follow up visit

- By second visit, they have had time to practice shifting from pain relief to focusing on function. The multidisciplinary part is an intervention because psychology and PT show exercises and give homework until they are established with other providers if needed.

- 40% of our patients do not follow up after their initial appointment

- Of those, ~75% of them report improvement in symptoms and no need for follow up

**SO WHY NOT UTILIZE MORE OPIOIDS IN CHRONIC NON MALIGNANT PAIN PEDIATRIC POPULATION?**

- Because of the use of opioids for kids who have chronic pain is not indicated

- Pharmacological interventions currently employed are primarily extrapolated from adult trials without efficacy in children

- Opioids are rarely indicated in the long term treatment of long term chronic non-malignant pain in children (except: sickle cell disease, incurable degenerative joint disorders, neurodegenerative diseases)

- Children with chronic pain are best cared for with interdisciplinary assessment and management with combination of medicine, psychology, and rehabilitation services

- Given comorbidity of anxiety and depression in adolescent chronic pain population, at greater risk of opioid misuse later in life which will then become problematic in adulthood

1. ASSESSMENT AND MANAGEMENT OF CHILDREN WITH CHRONIC NON-AMERICAN PAIN SOCIETY, 2012
2. V OLKOW & MCLELLAN, NEJM, 2016
CURRENT OPIOID EPIDEMIC IN THE US

- Opioid epidemic declared a national emergency on August 11, 2017
- U.S. writes for 80% of the world’s opiate prescriptions but accounts for 3% of total world population
- 300K Americans have died of drug overdose in the past 15 years and that same number is projected over the next 5 years
- Leading cause of death for people under age 50
- U.S. accounts for 3% total of world’s population but contributes to 40% of the deaths from overdose in the world

TIDALWAVE!!
OPIOID EPIDEMIC IN TEXAS

- Texas overdose deaths low as compared to many states but that is thought to be related to under reporting.
- 1,375 Texans died in 2016 from accidental drug overdose (prescribed or not), a number that was stable from 2015 (1,287).
- 617 Texans died in 2017 from prescriptive drug overdose (not statistically significant, 590 in 2015).
- 198 young Texans (0-24) died of accidental drug overdose in 2016.


OPIOID EPIDEMIC IN TEXAS

- Texas has since passed legislation to address the opioid epidemic to address current spikes of certain drugs.
- Heroin deaths on the rise and with recent spike in fentanyl spiked heroin overdoses.
- Senate Bill 1462 passed in 2015 that made naloxone commercially available without prescription.
- Projected to increase based on incidence in contiguous states and being north of a country that is largely responsible for drug import into this country.

HOW DOES THIS AFFECT THE PEDIATRIC POPULATION?

• Children < 18 years of age represent 25% of the US population

American Academy of Pediatrics, 2017

• Rate of opioid prescriptions in adolescents 15 to 19 years of age doubled from 1994-2007

American Academy of Pediatrics, 2017
HOW DOES THIS AFFECT THE PEDIATRIC POPULATION?

- Children < 18 years of age represent 25% of the US population
- Rate of opioid prescriptions in adolescents 15 to 19 years of age doubled from 1994-2007
- 2 million Americans > 12 years either abused or were dependent on opioid painkillers in 2013

American Academy of Pediatrics, 2017

HOW DOES THIS AFFECT THE PEDIATRIC POPULATION?

- There is a mismatch between the amount of opioids needed to treat pediatric acute pain, with children using <50% of prescribed opioids
- Leading source of RX opioids among adolescent non-medical users are from their peers and from their own previous opioid prescriptions
- Left over prescription opioids account for a substantial source of nonmedical use of RX opioids among HS Seniors

American Academy of Pediatrics, 2017

ARE OPIOIDS INDICATED FOR THESE PEDIATRIC COMPLAINTS?

- Back pain: “Opioids should be used sparingly and done only with assistance from pain specialist.” Pediatric Clinics of North America, 2018.
- Abdominal pain: “Opioids can aggravate chronic abdominal pain, have side effects, and should be avoided.” Physical medicine and rehabilitation, 2015.
IMPACT THAT OPIOID EPIDEMIC WILL HAVE ON CLINICAL PRACTICE MOVING FORWARD

• More scrutiny of prescriptive practices by hospitals and insurance providers
• Push now to prescription drug monitoring programs
• Enhanced naloxone distribution, access to treatment for opioid misuse
• Increase mental health professional numbers should be goal given

BUT IF YOU MUST……

• Follow CDC guidelines for prescribing opioids in chronic non-malignancy patients
• Establish treatment goals
• Discuss risks and “go low” with dosing
• See frequently for follow up for dose escalation (Q1-4wks)
• Evaluate risk factors
• Drug testing

CDC GUIDELINE PRESCRIBING OPIOIDS FOR CHRONIC PAIN

BUT IF YOU MUST…

GUIDELINE FOR PRESCRIBING OPIOIDS FOR CHRONIC PAIN

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WHAT NURSES AND PROVIDERS CAN DO AS EDUCATORS

• Avoid ER/LA opioids given their potential for abuse
• Have appropriate amount of opiate number for problem (ie: don't write for 100 hydromorphone tablets for a broken arm)
• Non-pharmacologic therapy and non-opioid medications are preferred for chronic pain
• Talk to the young people in your life about the dangers of opioids
• When patient is discharged, educate on appropriate storage and disposal
• Arrange treatment for opioid use disorder if needed
• Please call pain management team if you need assistance, resources, etc

SO AGAIN, SHOULD WE CURTAIL OUR USE OF OPIOIDS GIVEN OUR STATE OF AFFAIRS IN 2018?

• Use opioids when they are indicated
• Be cognizant of aberrant behaviors in this population as they do sometimes exist
• Use an opiate risk assessment tool
• In Dallas, there will be house wide knowledge assessments to learn deficits in opioids in the next year which will then help us tailor education moving forward
• With chronic pain, focus more on function and less on a pain scale
• And NO, we don’t need to curtail our use as we use them very little already

CASE #1

• 16 year old Caucasian female presents to pain management clinic with R foot pain that has been present for ~1 year after she fell at a volleyball game. No other symptoms except for initially swelling. She now occasionally has intermittent edema to her foot. Additionally, has now developed “aching” pain all over to her back and bilateral upper and lower extremities. Her pain is constant, worse in intensity at night or after activity. Patient is now wearing a brace on the R ankle and has transferred to home bound schooling due to missing too many days.

• PMHx: None
• Prior studies and evaluation She had normal X-ray and MRI of her R foot and ankle. Labs were all normal. She has been evaluated by orthopedics, sports medicine, rheumatology all of whom recommended physical therapy and pain management. She has completed 2 months of physical therapy, with much improvement.
• Medications tried: Ibuprofen, Tylenol, naproxen, Tylenol #3, Tramadol, Hydrocodone, Gabapentin (for 2 weeks), Cymbalta
• Currently taking: Ibuprofen and Tylenol #3 PRN daily
• Social: Prior to her injury, patient played volleyball daily for her school and club team. She was secretary of student council and in NHS. Patient wants to go to college and study nursing. After further discussion, around the same time of the patient’s injury her parents were getting divorced. Her mood has continued to decline and mom says she is irritable and does not want to go out with her friends anymore.
• Patient participated in multi-disciplinary clinic and met with physical therapy, psychology, and the pain physician.
• Physical exam was normal.
• Determination was that she was not participating in home exercises as instructed and had significant depression/anxiety

TREATMENT PLAN
• Patient was started on escitalopram (Lexapro) 10mg for her anxiety and meloxicam 7.5mg daily PRN. She was also prescribed diclofenac topical 1% gel.
• She was given referral for continued PT and recommendations to purchase a TENS unit.
• She was given referral to pain psychologist.
• With time and effort she improved and is back in school 😊