PAIN ASSESSMENT AND MANAGEMENT FOR CHILDREN – A CPS PEDSCASE PODCAST

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Introduction:

Hi everyone, thanks for listening to this PedsCases Podcast. My name is Alexis Fong-Leboeuf, and I am a PGY3 Pediatric Resident at Dalhousie University and the IWK Health Centre. This podcast was created in collaboration with Dr. Evelyne Trottier, a Pediatric Emergency Medicine Physician, Dre Marie Joelle Doré-Bergeron, a pediatrician specializing in chronic pain, from CHU Sainte-Justine, Université de Montréal and Dre Samina Ali, a pediatric emergency physician from Stollery Children's Hospital in Edmonton. Drs. Trottier, Doré Bergeron and Ali are authors of the November 2022 Canadian Pediatric Society Position Statement: Best Practices in Pain Assessment and Management for Children, which will be reviewed in this podcast.

Historically, children's pain has been under-recognized and under-treated. Evidence shows that suboptimal pain management can have not only short-term but also long-term consequences, including acute discomfort and distress, increased fear of medical visits, development of chronic pain, and future avoidance of the medical system.

The objectives for this podcast / CPS statement are as follows.

The listener will be able to…

- Assess pain in both verbal and non-verbal children and youth
- Initiate and support non-pharmacologic pain interventions
- Initiate and provide ongoing pharmacologic management of acute pain
- Demonstrate an approach to initiating chronic pain management in children

Case

Let's start off with a quick case presentation – think back to this case as we move through this podcast. Alannah is a neurotypical 8 year old girl with longstanding neuropathic pain secondary to chemotherapy treatment for Acute Lymphoblastic Leukemia. She now presents with acute pain after sustaining a left radius fracture.

Before we can really delve into pain management, we need to explore some of the fundamentals surrounding pain and its assessment.

What is pain?
According to the *International Association for the Study of Pain* (IASP), pain is an unpleasant sensory and emotional subjective experience that can be modulated by emotions, developmental factors, culture, current context, and previous pain experiences. It is imperative to evaluate and attempt to quantify pain at a first encounter, with regular re-assessment during care to evaluate response to treatment.

Assessing Pain in the Verbal Child or Adolescent
Whenever possible, given its subjective nature, pain should be evaluated through self-report, rather than by proxy. In the child who can verbally communicate, or communicate via assistive technologies, it is best practice to utilize self-reported pain scales. At current, the most commonly used and recommended scales include the verbal Numeric Rating Scale-11 (NRS-11), the Faces Pain Scale-Revised (FPS-R), and the Colour Analogue Scale (CAS).

Assessing Pain in the Non-verbal Child or Adolescent
For pre- or non-verbal children, or those unable to use assistive technologies, self-report utilizing the scales I just mentioned may not be possible. You should never assume that a child is unable to provide a self-report, although sometimes cognitive ability may preclude the ability to self-report pain. In this case, we use observational pain measures to quantify pain, often looking at different behavioral signs. Examples of these include the NIPS, the NFCS, the FLACC, the EVENDOL, the CHEOPS, and the COMFORT.

<Musical interlude>

Non-Pharmacologic Interventions
The key to any pain management, whether acute or chronic, is to employ a multi-modal approach. It requires more than just pharmacologic intervention, including concomitantly and equally importantly, physical and psychological therapies. While some of these techniques can be initiated in-office, many are more complex and may require additional training to use properly. Collaboration with allied health professionals including nursing and child-life specialists, as well as family members is critical in the communication and explanation of procedures, in addition to providing distraction and support throughout an intervention.

Acute Pain Management
Over the counter analgesics such as acetaminophen and non-steroidal anti-inflammatory medications such as ibuprofen can be used as monotherapy for mild to moderate (1-3 to 4-6/10) pain or as co-therapy for moderate to severe pain (4-6 to 7-10/10). There is strong evidence that pain can be treated early without affecting

diagnostic accuracy. In fact, pain relief often makes examination and testing easier, thereby facilitating diagnosis.

Ibuprofen is typically considered first line for mild-to-moderate pain, or co-analgesia for severe pain. Its anti-inflammatory properties make this a useful first-line medication, though care should be taken to not concomitantly administer IV and oral NSAIDs. Notably, ibuprofen is actually comparable to oral morphine for sprains, simple fractures, and following minor orthopedic procedures and tonsillectomies. Be careful not to prescribe NSAIDS to patients with impaired renal function, active bleeding, GI bleeding, active chicken pox, or a bleeding disorder.

Acetaminophen is typically an appropriate option if ibuprofen is contraindicated. It is available over the counter but should be avoided in severe hepatic impairment.

Ibuprofen and acetaminophen may be utilized together or given in alternating doses, depending on the patient's pain care needs.

For patients presenting with acute moderate-to-severe pain, opioids may be a reasonable option, and should always be provided alongside non-opioid analgesics for their opioid-sparing effect. In general, opioids should be used sparingly, and usage should be monitored closely to reduce adverse events and risks.

Intranasal fentanyl offers a unique and fast mechanism for opioid administration for acute severe pain in the medical setting. Intranasal fentanyl allows for a faster and less painful administration than intravenous or intramuscular routes. Just like intravenous opioids, it requires close monitoring of the patient. Intravenous opioids are used preferentially in acute settings once intravenous access is established, with intravenous morphine being the most commonly used agent.

In addition, oral opioids such as oral morphine can be a reasonable option for certain conditions, when treatment with first-line medications is not sufficient (remember, ibuprofen and acetaminophen should be taken around the clock with opioid administration). If required at discharge, oral opioid prescriptions should be short term (2-3 days, or 5-10 doses) with appropriate follow-up management if pain is not adequately managed at home.

<Musical interlude>

<u>Chronic Pain Management</u>

Chronic pain is defined as persistent or recurrent for >3 months, and is best managed via a multimodal approach, including physical, psychological, occupational, and pharmacological therapies. The goal of managing chronic pain is not only to "cure" the pain per se, but also to focus on improving function.

Psychological therapies include psychoeducation, physiological self-regulation training such as biofeedback, cognitive skills training and behavioural exposure therapy. Physical Therapy may be used to address potential secondary musculoskeletal impairments and imbalances. Physical therapy may utilize gradual exposure to movement, pacing, and graded motor imagery. Occupational therapy may be beneficial to promoting sensory rehabilitation and decreasing sensitivity to stimuli perceived as painful, in addition to helping the child get back to activities of daily living.

Pharmacological therapies may include antidepressants (ie. amitriptyline) or antiepileptics (gabapentin/pregabalin). There is little quality evidence for pharmacological treatment of chronic non-cancer pain in children.

<musical interlude>

Case Presentation

Let's come back to our case with Alannah. Alannah is our neurotypical 8 year old young friend who has chronic neuropathic pain secondary to chemotherapy-induced peripheral neuropathy, and has also just presented to the Emergency Department with an acutely painful fracture.

It's first important to acknowledge that there are 2 different mechanisms of pain affecting Alannah. We have an acute injury that needs to be assessed and treated in the ED, in addition to her more long-standing chronic pain, which is usually taken care of by her multi-disciplinary chronic pain team.

Take a second, pause the podcast and think about the ways in which you might evaluate Alannah's acute pain first in the ED.

First of all, Alannah is an 8 year old girl who is verbal; this means that we can use some of the self-evaluation rating scales for Alannah to better quantify the pain she is experiencing. A great option would be to use the Numeric Rating Scale-11 (NRS-11) because of its simplicity, and its ability to be verbally administered. It is important to have Alannah's evaluation of her pain as a priority, instead of asking her caregivers.

How might you manage Alannah's acute pain in the ED when she grades her pain 7 out of 10 using the NRS-11? Take a second, pause the podcast and think of your approach.

In the context of severe acute pain, at triage, the nurse has provided Alannah some first line management for her pain, including physical strategies, such as a sling for her arm and an ice pack, as well as first line medications, including ibuprofen, in combination with acetaminophen, using nurse medical directives. Since the severity of her pain is persisting at your evaluation, still being 7 out of 10, you propose to Alannah and her family to give intranasal fentanyl to reduce her pain further during X ray of her arm, as pain increases with mobilization.

You also ask your Child-Life Specialist to see Alannah and her family to support them better and provide them some distraction tools. Alannah has a minimally displaced fracture on her x ray. After plaster cast immobilization and your multimodal approach, her pain is now well managed. At discharge, you suggest to Alannah to take around the clock ibuprofen for the next 24-48h, combined with acetaminophen (if needed), to keep her arm elevated with her sling and to use the other psychological strategies taught in the ED.

A few months later, while her fractured arm is now healed, you see again Alannah, this time in the chronic pain clinic for her neuropathic pain, which has been longstanding. Again, you should consider multimodal interventions, and prioritize function as a key outcome.

‘’I've had the pain in my hands and feet for a while now – maybe a few months, but it's been getting worse. I's maybe a 6/10 pain at worst. It feels like tingling and burning. Sometimes it feels like it's shooting up my legs and is present all the time. Moving makes it worse, and nothing right now seems to make it feel any better. I haven't tried anything for this pain, but it does make it hard to participate at school. I find it difficult to stand for long periods of time, and this makes showering really difficult in addition to participating in games during gym class. I really miss playing with my friends!"

Pause the podcast here in order to organize your thoughts.

At your evaluation, Alannah has had ongoing pain for a while that is functionally limiting her from being able to participate in activities of daily living (such as showering), in addition to participating in activities at school such as gym class. The goal of addressing Alannah's chronic neuropathic pain is both to decrease pain as well as to decrease the associated functional impairment.

When talking to Alannah about her goals, it's evident that she misses being able to play with her friends during gym class, and it's apparent in talking to her caregivers the difficulty they have in convincing Alannah to shower due to the pain she experiences with prolonged standing. It's important to elucidate what is important to the patient, and what could be done in order to improve activities of daily living and functioning.

It is critical to work closely with an interdisciplinary team in order to help achieve some of Alannah's goals. For example, Alannah may be able to work with physiotherapy and occupational therapy on strengthening and endurance, finding ways to modify her school/home environment to facilitate some of her goals (ie. Does Alannah NEED to stand in the shower, or could she use a shower chair/rest), working on decreasing allodynia and hyperalgesia using techniques such as graded motor imagery, decreasing kinesiphobia, etc. It would also be beneficial for Alannah to meet with psychology for other interventions such as biofeedback, or different skills and techniques such as deep breathing, thought stopping, muscle relaxation, imagery, etc.

From a pharmacologic standpoint, it may be pertinent to consider either an anti-depressant or a gabapentinoid for her pain; however should only be done with close follow-up and ongoing monitoring. A consultation with a pain specialist could be done if needed. At subsequent visits, pain should be frequently re-evaluated, looking at pain intensity as well as changes in daily functioning. You chose to start Alannah on gabapentin, in addition to working with your interdisciplinary team. She still describes 3-4/10 pain on your next check in, but is excited that she has been able to find different ways to participate in gym class, and her parents are ecstatic that she is able to tolerate showering with her shower seat.

<Musical interlude>

In Summary

You could say… it "HURTS" me to say this, but children's pain has historically been under-recognized and under-treated. With the evidence we have showing impacts of chronic and acute pain experiences in childhood, it's imperative for healthcare providers to be aware of the resources available for identifying and scoring pain, in addition to the multifaceted approach to it's management thereof. This CPS statements final recommendations are that:

Healthcare providers should:

- Be familiar with the use of developmentally appropriate pain assessment tools as an essential first step to providing optimal pain management in pediatrics
- Understand that children's pain, where possible, should be self-reported. When self-reporting is not possible or appropriate, an appropriate assessment tool should be used
- Appreciate that in medical settings pain management can be improved through:
  - Mandatory pain assessment at the first encounter with children and youth
  - Timely reassessment (and documentation) during and after procedures, as appropriate, and following every clinical intervention
  - Integrating pain assessment and management steps into treatment algorithms, electronic medical records, hospital guidelines, and regional or provincial/territorial guidelines
- Understand that pain prevention and management guidelines must include psychological, physical, and pharmacological strategies for acute and chronic pain. Health care directives and practice guidelines should combine strategies and approaches in the health care setting and for use at home
- Understanding that when managing chronic pain in pediatrics, relief of symptoms and improved function are the primary goals
- Counsel and train parents in appropriate assessment and management in addition to providing clear instructions for therapy and medication at home.

And that's it! Today we discussed a variety of important concepts surrounding acute and chronic pain management and assessment, and I hope you were able to take away

some helpful pieces of information. Thank you so much to Drs Drs. Trottier, Doré Bergeron and Ali for their contributions to this podcast and CPS statement and the Pedscases team.

Thanks and good luck!

<*Musical outro*>

References:

Trottier, E.D. *et al.* (2022) *Best practices in pain assessment and management for children*, *Canadian Paediatric Society*. Available at: https://cps.ca/en/documents/position/pain-assessment-and-management (Accessed: 15 June 2023).

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