Policy on Pediatric Pain Management

Originating Council
Council on Clinical Affairs

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Purpose

The American Academy of Pediatric Dentistry (**AAPD**) recognizes that children vary greatly in their cognitive and emotional development, medical conditions, and responses to pain and interventions. Infants, children, adolescents, and those with special health care needs can and do experience pain, and the majority of pain in the dental setting can be prevented or substantially relieved. The AAPD further recognizes that there are many therapeutics available to treat pain with varying dosages and that recently concern has developed about associated toxicities to codeine and acetaminophen.

Methods

This policy is based on a review of current dental and medical literature pertaining to pediatric pain management including a systematic electronic literature search with PubMed® using the terms: pain management and dentistry, pediatric pain assessment, dental analgesia and opioids, dental analgesia and NSAIDs, postoperative pain; fields: all; limits: within the last ten years, humans, all children zero to 18 years, English, clinical trials, and literature reviews. The search returned 128 articles. The reviewers agreed upon the inclusion of 17 articles that met the defined criteria. When data did not appear sufficient or were inconclusive, recommendations were based upon expert and/or consensus opinion by experienced researchers and clinicians.

Background

Pain assessment is an integral component of the dental history and comprehensive evaluation. When symptoms or signs of orofacial/dental pain are evident, a detailed pain assessment should be conducted and documented in the patient's record. This assessment helps the dentist to derive a clinical diagnosis, develop a prioritized treatment plan, and better estimate analgesic requirements for the patient.

Pain is difficult to measure due to its subjectivity, especially in children,[1] and often relies on the report of parents. There are several pain scale indicators that can be used with children, including the FACES pain scale and the Wong-Baker FACES scale.[1,2] Whichever method of assessing pain is selected by the practitioner, it must be able to accurately reflect the patient's level of pain. Pain experienced by children with special health care needs or developmental disabilities is more challenging to assess accurately and may require utilization of scales that rely on observations such as vocalization, facial expressions, and body movements.[3-5]

When assessing pain in a child, the patient's psychological status should be considered. The dentist should account for the intensity and duration of pain that may be perceived from a given dental procedure.[6] Depending on the duration and intensity, pain control therapy may range from cognitive behavior therapy and non-pharmacologic modalities to pharmacological treatment. Behavior therapy includes guided imagery, distraction, play therapy, and tell-show-do. Pharmacologic therapy may consist of adequate local anesthesia, anxiolysis, moderate sedation, or deep sedation regimens.[7]

The extent of treatment affects post-operative pain. It has been reported that 95 percent of children undergoing full mouth dental rehabilitation, regardless of extent of treatment, report pain of moderate intensity.[8] Pain scores usually are their highest immediately postoperatively while the patient is in the post-anesthesia recovery unit.[8] Due to analgesics and/or local anesthetics administered intra-operatively during dental rehabilitation, some patients may be delayed in their pain response and report greater intensity of pain at home following the procedures. Patients who had extractions, as well as those who had 12 or more dental procedures, were more likely to experience pain at home.[8]

The selection of an appropriate analgesic depends on the individual patient, the extent of treatment, the duration of the procedure, psychological factors, as well as the patient's medical history and physiologic factors such as bleeding disorders, liver problems, or kidney problems. Analgesics should initially be administered on a regular time schedule if moderate to severe pain is considered likely during the first 36 to 48 hours and not as needed so as to create stable plasma levels of analgesics and decrease the chance of breakthrough pain.[6,9,10]

Treatment of postoperative pain may include opioid analgesics and non-opioid analgesics [e.g., nonsteroidal anti-inflammatory agents (**NSAIDs**), acetaminophen]. Since most cases of postoperative pain include an inflammatory component, NSAIDs are considered first line agents in the treatment of acute mild to moderate postoperative pain.[9] Acetaminophen lacks anti-inflammatory properties but can be a non-opioid alternative when NSAIDs are contraindicated. Acetaminophen is found as a single agent and also in combination with other agents such as opioid analgesics. Overdose of acetaminophen is a common pediatric emergency.[11,12] For this reason, it must not be given

prior to six hours after the last dose was administered, whether at home, in office, or in the post-anesthesia recovery unit of the hospital.[13]

Opioid analgesics provide analgesia for moderate to severe pain but have side effects including sedation and respiratory depression.[14] Opioid analgesics are often added to non-opioids to manage moderate to severe pain. Concomitant administration with ibuprofen can reduce the amount of opioid analgesic required for pain control. Codeine, one of the most widely prescribed narcotics, is a prodrug that is metabolized into morphine in the liver.[14] Recently, research has found a genetic polymorphism of the liver cytochrome enzyme which causes some patients to be ultra-rapid metabolizers of codeine.[15] Ultimately, these patients convert codeine into high levels of morphine, very quickly. There is no way to reliably identify which patient might be an ultra-fast metabolizer other than a non-commercially available laboratory test. For this reason, care must be exercised when postoperative use of codeine is considered as it may have undesirable consequences including death, especially in infants and children.[15,16] Of equal importance to consider is that the other variant of this liver enzyme may cause patients to be poor metabolizers of codeine and consequently under-respond to the narcotic.[17] Repeated doses of codeine/acetaminophen combinations sooner than six hours in these patients may result in acetaminophen overdose.

Often, practitioners can be hesitant to prescribe opioid analgesics for pediatric patients for fear of addiction. Because opioid use for dental pain should be of short duration, physical dependence is unlikely and its use should be considered.

Policy statement

The AAPD recognizes that children experience pain and exhibit variability in the expression of pain and that inadequate pain management may have significant physical and psychological consequences for the patient. Therefore, the AAPD encourages health care professionals to:

- Recognize and assess pain, documenting in the patient's chart.
- Use non-pharmacologic and pharmacologic strategies to reduce pain experience pre-operatively.
- Be familiar with the patient's medical history to avoid prescribing a drug that would be otherwise contraindicated.
- Comprehend the consequences, morbidities, and toxicities associated with the use of specific therapeutics.
- Consider non-opioid analgesics as first line agents for post-operative pain management.
- Utilize drug formularies in order to accurately prescribe medications for the management of postoperative pain.
- Consider combining NSAIDs with acetaminophen to provide a greater analgesic effect than the single agent alone.
- Combine opioid analgesics with NSAIDs for postoperative treatment of moderate to severe pain in children and adolescents.

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