

DOCS DIGEST

The Anesthesia and Pain Management Issue



Preoperative Use of NSAIDs
Postoperative Analgesia & Sedation
Perioperative Use of NSAIDs



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Postoperative Analgesia & Sedation

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I affectionately call it **“The Question,”** and it goes like this: “What do you recommend I prescribe my patients to manage postoperative pain on the day of the sedation appointment?” It, along with the *other question*, “How much should I charge for sedation?” are the only two questions I can honestly say have been asked of me at every single seminar I’ve ever given on sedation dentistry (there have been hundreds).

My response to “The Question” as well as the reaction to my response is predictable. When I say, “I recommend you don’t prescribe anything,” they look at me like I have two heads. Then they’ll say, “You don’t understand Tony, I’m talking about invasive procedures. What do you give those patients?” Despite incredulous looks of astonishment and eventually disdain, I stick to my guns even in the face of ridicule. This is perhaps as good an opportunity as any to fully explain my answer to “The Question” given this forum is a membership service provided to all DOCS members. First of all, I can’t take full credit for the answer. It is the collaborative effort of the entire DOCS faculty who have arrived at these conclusions based on what they have learned from others regarding the pharmacodynamics and pharmacokinetics of sedative/hypnotic and analgesic agents. Secondly, there isn’t much in the literature that deals with this specific question. Therefore, I justify the answer based on both empirical (what I believe based on what I have observed and/or experienced) and knowledge-based (what I know based on commonly accepted standards of knowledge) information. So, here it goes:

What I Believe:

1. The greatest risks associated with an oral sedation event is the postoperative period immediately following the sedation appointment (same day), not the intraoperative period. Sure, the greatest level of central nervous system depression is during the patient’s time in the office, but given the standards of monitoring and patient assessment, plus the wide range of safety of the DOCS protocols and the drugs therein, there is little reason to expect an adverse event to occur in the office. This belief is supported by an

estimated one million uneventful sedation experiences utilizing the DOCS protocols.

What I Know:

1. During the postoperative period the patient may still have a significant amount of CNS depression that can actually deepen relatively due to lack of stimulation as opposed to the stimulation they experienced while they were being treated.
2. During this postoperative period their level of consciousness, airway position, and vital statistics are not monitored by equipment nor attended to by professionally trained personnel. Still, if their companion follows instructions given to them, including hydration and avoiding CNS depressants not prescribed for them (such as alcohol), then the risk is minimal.

What I Believe:

1. However, these companions often do not persist in keeping the patients awake and hydrated. Hundreds of phone calls on the evening of the sedation appointment has confirmed this.
2. Sedated patients don’t experience much pain immediately following the appointment, as do non-sedated patients. Again, experience has made me a believer, but what we know of the pharmacodynamics and psychological effects of the benzodiazepines explains this phenomenon. Benzodiazepines not only affect the psychological experience that affects post-operative comfort, but they have muscle relaxant, as well as anti-inflammatory properties.¹

What I Know:

1. The pain from dental treatment is the result of tissue cell damage, initiating a local inflammatory response, a cascade of events resulting in the perception of pain by the CNS. Nonsteroidal anti-inflammatory drugs (NSAIDs) have anti-inflammatory actions at the site of pain, and their use often results in relief of pain for significant periods.²
2. NSAIDs, like all drugs, are not without toxic effects. The most prominent of these adverse events are gastrointestinal bleeding and renal side effects. While all NSAIDs are about equally efficacious, ibuprofen is among the least toxic (not including the COX-2 selective inhibitors that are largely unavailable today).²
3. Opiates (narcotic acting) do not have anti-inflammatory actions. They are primarily centrally acting, producing analgesia by binding to specific G protein-coupled receptors that are located in the brain and spinal cord regions involved in the transmission and modulation of pain.²
4. Opiates have hypnotic properties (more sleep), as well as adverse effects including, respiratory depression, nausea and vomiting, constipation, postural hypotension, and dysphoric reactions (behavioral restlessness, tremulousness, and hyperactivity).²
5. The central action is important in modulating the pain experience. Acetaminophen works centrally as well, and has little or no anti-inflammatory properties.

Acetaminophen however does not depress respiration and lacks the other adverse events associated with opiates. It also lacks the platelet-inhibiting properties and gastrointestinal irritation of the salicylates and NSAIDs.²

6. Acetaminophen is not without its own toxic potential. Even in therapeutic doses, a mild increase in hepatic enzymes occasionally occurs temporarily. At larger doses, the potential for severe hepatotoxicity increases, and ingestion of 15 gm may be fatal. Doses greater than 4 gm/day are not recommended and a history of alcoholism contraindicates even this dose.²






What I Believe:

1. Combining the centrally acting acetaminophen with the peripherally acting anti-inflammatory NSAIDs are more effective in modulating the pain experience than either one by themselves. This is a two-pronged attack that not only results in higher efficacy, but also allows the dosages of each to be reduced, minimizing the adverse events more likely to occur with either given drug given at higher dosages.

What I Know:

1. This is the same principle that applies when opiates and NSAIDs are combined (e.g. hydrocodone & ibuprofen in the brand Vicoprofen®).

What I believe and recommend on behalf of DOCS based on the preceding information:

Postoperative Medication		Dosage	Frequency
	Ibuprofen Acetaminophen	400-600 mg 1000 mg	q6h
	Ibuprofen	800 mg	t.i.d.
	Ultracet® (tramadol + acetaminophen)	37.5 mg Tramadol 325 mg Acetaminophen	q.i.d.
	Ultram® (tramadol)	50 mg	q.i.d.
	Etodolac® (iodine)	300 mg	t.i.d.

- a. To balance reducing the risk of respiratory depression and other toxic effects on the day of the appointment with efficacy in pain relief we recommend a peripheral anti-inflammatory agent combined with a centrally acting nonopioid analgesic – ibuprofen (400-600 mg) + acetaminophen (1000 mg) q6h prn mild-moderate pain relief.

the pharmacokinetics and pharmacodynamics of DOCS sedation protocol sedatives and the analgesics available to us. DOCS recommends nonsedating analgesics that do not depress respiration, yet combine both central and peripheral actions to modulate pain perception, and when combined with one another reduce the toxic effects of either by themselves.

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- b. For patients who cannot tolerate acetaminophen or have liver damage and/or past history of alcoholism, use 800 mg of ibuprofen t.i.d. prn pain.
- c. For patients who cannot tolerate ibuprofen, or moderate to severe pain is anticipated, or they “need a narcotic prescribed”, then Ultracet® (37.5 mg tramadol + 500 mg acetaminophen). If they cannot tolerate acetaminophen, then Ultram® 50 mg q.i.d. (tramadol alone). Note: Tramadol is a nonopioid analgesic that works primarily at the kappa receptor, not the mu receptor, thus has little respiratory depression.
- d. For patients who need a prescription for mild to moderate pain relief, or they report stomach upset with ibuprofen, I will substitute Etodolac® (lodine), an NSAID, for ibuprofen at a dose of 300 mg t.i.d.. Etodolac® is similar in efficacy to other NSAIDs but is more COX-2 selective than most resulting in less gastric toxicity.²



Dr. Anthony Feck, is regarded as one of the most experienced and knowledgeable authorities on oral conscious sedation in dentistry today.

Dr. Feck practices general dentistry in Lexington, KY, with an emphasis on comprehensive dental care for sedation patients. Dr. Feck’s other interests include practice management. His company, Sunrise Dental Solutions (SDS), works with clients all over North America to improve sedation practice profitability through effective implementation, team training, and personal coaching. He can be reached at DrFeck@DOCSeducation.com.

References:

1. Farges R.C.. Peripheral Benzodiazepine Receptor Ligands and their Anti-Inflammatory Effects. Current Medicinal Chemistry, Benthan Science Publishers, Volume 2, Number 4, December 2003, pp. 409-416.
2. Katzung, Basic and Clinical Pharmacology, 10th ed., McGraw Hill Lange, New York, 2007, pgs. 573, 492, 501, 591, 583, 579, 591-592, 580.

Conclusion

We are bound by our pledge to “first do no harm” in our efforts to assist our patients toward optimal oral health. Despite the outstanding track record of safety with the DOCS protocols, oral conscious sedation is not without risk. That risk continues after we dismiss our patients following the sedation appointment, and in some ways is greater. We can best minimize that risk with effective pain relief by taking into consideration

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