Opioid prescribing for acute postoperative pain after cutaneous surgery

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Background: Little information is available to predict which patients require opioid analgesia following cutaneous surgery. When opioids are indicated, information regarding the optimal opioid agent selection and dosage is lacking.

Objective: To make recommendations for opioid prescription after cutaneous surgery.

Methods: A PubMed literature search was conducted to review the available literature. Recommendations are presented on the basis of available evidence and the opinion of the authors.

Results: Most patients undergoing cutaneous surgery do not require opioid analgesia. For those who do, the duration of pain warranting opioid analgesia is generally less than 36 hours. Opioid refill requests warrant a follow-up visit to ascertain the cause of ongoing pain after excisional procedures.

Limitations: The recommendations are not based on prospective randomized trials.

Conclusions: The presented recommendations for opioid prescription practice are derived from available evidence, recommendations, and expert opinion. (J Am Acad Dermatol 2019;80:743-8.)

Key words: addiction; cutaneous surgery; dermatologic surgery; flap; Mohs micrographic surgery; narcotic; opioid; pain; public health.

Most users of illicit opioids (71%) acquire them from a friend or family member who obtained them through a legitimate prescription. Therefore, the Centers for Disease Control and Prevention recommends that when clinicians prescribe opioids for acute pain, 3 days' worth or less will often be sufficient and more than 7 days' worth will rarely be needed.[1] Overprescription and variation in opioid prescribing have been observed after many various surgical procedures,[2-4] including cutaneous surgery.[5,6] In 1 study of cutaneous surgery patients, 86% of patients who filled an opioid prescription had leftover pills and only 4% planned to dispose of them appropriately.[6]

Opioid prescribing among dermatologists occurs primarily in the surgical setting and may be associated with adverse events.[7] Fortunately, most patients undergoing cutaneous surgery do not require opioid pain relief.[6,8-11] For those who do, the required amount and duration of opioids are generally within these limits.

METHODS

Articles from a PubMed search (on November 1, 2017) were included if they evaluated postoperative pain after cutaneous surgery. Available evidence was

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reviewed, and recommendations are presented on the basis of available evidence and the opinion of the authors of the present review.

RESULTS

Who requires opioid analgesia and for how long?

The evidence reviewed was limited to excisional procedures. Of the 7 articles, 6 included only patients who had undergone Mohs micrographic surgery[6,8-13] and found few consistent predictors of postoperative pain (Table I). Most patients undergoing cutaneous surgery do not require opioid analgesia and receive adequate or even superior pain control through nonopioid interventions.[6,8-11]

CAPSULE SUMMARY

- Nonopioid interventions should be used for patients in pain; patients who need opioids should also receive nonopioid therapy.
- Among patients requiring opioids, a 36-hour supply is generally adequate. Requests for refill beyond expected duration of need should require a return visit.

Firoz et al[9] found that 48% of 433 patients who had undergone Mohs micrographic surgery used no postoperative pharmacologic pain management. Only 7.1% of patients took opioids for postoperative pain on the day of surgery, and only 4.1% of patients required opioids on postoperative day 1. Patients younger than 66 years, patients receiving opioids preoperatively, and patients with flap repairs had higher postoperative pain scores. Patients with wounds left to heal by second intention had lower pain scores.

A study of 158 patients who had undergone Mohs micrographic surgery found that postoperative pain was greatest on the day of surgery, with an average patient-rated discomfort score of 2 on a scale of 1 to 10.[10] Among patients, 55% received acetaminophen on the day of surgery; 16% took opioids on the day of surgery, but the majority of these patients (53%) took only 1 pill throughout their postoperative course. Patients taking opioids were unlikely to take acetaminophen and vice versa. More pain was related to scalp procedures and occurred among patients undergoing multiple same-day procedures. Compared with the patients in the study by Firoz et al,[9] all patients in this study[10] were given an opioid prescription to fill as needed, and more patients (16% vs 7.1%) used opioids for pain relief.

In a study of 356 patients who underwent Mohs micrographic surgery, 2 pain anxiety scales were able to predict postoperative pain after cutaneous surgery.[11] The Pain Catastrophizing Scale and the Pain Anxiety Symptoms Scale confirmed that patients with a high level of anxiety toward pain had more postoperative pain. The study also found that although most patients have little discomfort after surgery, female sex and lower-extremity surgical sites were associated with more postoperative pain. This study, in agreement with Firoz et al,[9] reported that second-intention healing was associated with less postoperative pain.

A study of 1550 patients who had undergone Mohs micrographic surgery showed an average peak postoperative pain score of 2.0 of 10.[12] Patients with infections had higher pain scores (4.9 of 10). Increased postoperative pain was also associated with surgery on the genitalia, interpolation flap closure, female sex, younger age, active smoking, and number of stages required to clear the tumor.

A randomized controlled trial by Sniezek et al[8] compared acetaminophen, acetaminophen plus ibuprofen, and acetaminophen plus codeine for postoperative pain after Mohs micrographic surgery. Acetaminophen plus ibuprofen controlled postoperative pain more effectively and was associated with fewer complications than acetaminophen plus codeine was. Pain peaked at 4 hours and approached baseline levels at 12 hours. The lip was associated with the most postoperative pain, and the cheek was associated with the least. Younger age (<64 years) was associated with increased postoperative pain.

A study comparing full-thickness skin grafts with second-intention wound healing for defects of the helix found the mean pain scores to be similar for both (2.8 and 2.5 of 10, respectively).[13] In contrast to the previously mentioned studies, second-intention wound healing was associated with increased pain duration (a mean of 4.6 days vs 2.4 days).

An observational study of opioid use after excisional surgery (including Mohs micrographic surgery) showed that 86% of patients who filled an opioid prescription had leftover pills and only 4% of them planned to appropriately dispose of the unused pills.[6] Flap closure, graft closure, and female sex were associated with higher maximum pain scores. Second-intention wound healing was associated with lower maximum pain scores. Among patients who filled an opioid prescription, the mean number of pills taken was 3.7, with 79% taking 5 or fewer pills.

Table I. Risk factors for increased postoperative pain

Increased risk
Flap or graft repair
Lower extremity, scalp, lip, ear, or genital surgical site
Anxiety about pain (may manifest as request for prescription pain medication)
Current opioid user
Current smoker
Female sex
Multiple same-day procedures
Younger age (<64 years)
Decreased risk
Second-intention wound healing

Considerations to minimize risk of opioid abuse

The Opioid Risk Tool[14] is a 5-question assessment that is available from the National Institute on Drug Abuse (https://www.drugabuse.gov/sites/default/files/files/OpioidRiskTool.pdf); it stratifies patients into those at low, moderate, and high risk for opioid abuse. Alternative management strategies should be considered for patients with considerable risk of opioid abuse or with a history of substance use disorder.

A patient is considered opioid naive if he or she has had no opioids in the previous 90 days. For a patient already taking an opioid for chronic pain, any escalation in opioid therapy postoperatively should be made in direct consultation with the primary opioid prescriber. A potentially helpful calculation of the daily oral morphine equivalents (Table II) of the current regimen can be made to better understand the patient's daily preoperative opioid requirements.[15,16] The provider should consult a pain specialist before prescribing opioids for a patient receiving opioid antagonists (eg, naltrexone) or mixed opioid agonist-antagonists (eg, buprenorphine, buprenorphine-naloxone) or before recommending an addition to the patient's medicine.[17]

Opioid quantity recommendations

Of patients who require opioids after excisional cutaneous surgery, nearly all take opioid pain medication for fewer than 36 hours and most take only 1 pill.[6,8-10] We recommend prescribing no more than 36 hours' worth of postoperative opioid analgesia. If patients request a refill, complications such as hematoma, infection, dehiscence, and opioid misuse should be considered and a follow-up visit required before provision of additional opioid medication.

Table II. Comparison of analgesic ratio of common oral opioid medications

Oral opioid	Equianalgesic ratio*
Codeine	0.1
Tramadol	0.1-0.2
Morphine	1.0
Hydrocodone	1.0
Oxycodone	1.5
Hydromorphone	6
Fentanyl (transdermal)	100

*The equianalgesic ratio is the ratio of the quantity of 1 medication to produce the same analgesic effect to the quantity of a specific quantity of a different medication. An oral morphine equivalent is the equianalgesic dose of another agent to achieve the same analgesic effect as 1 mg of oral morphine. For example, 1 mg of transdermal fentanyl is equal to 100 mg of oral morphine or 100 oral morphine equivalents.

Opioid selection recommendations

When prescribing an opioid, a clinician should select the shortest-acting agent, the lowest effective dose, and the shortest duration possible (Table II).[15,16,18] Generally, the short-acting form of low-potency opioids—such as tramadol, 50 mg, or hydrocodone, 5 mg, plus acetaminophen, 325 mg, by mouth every 4 to 6 hours—provides adequate anesthesia after cutaneous surgery.[9,10,19,20] Care should be taken to counsel patients about the risk of acetaminophen toxicity when acetaminophen administration is concomitant with administration of a combination product consisting of both an opioid and acetaminophen. For short-term use in adults without liver disease, no more than 4000 mg of acetaminophen from all sources should be consumed in 24 hours.[21]

Long-acting formulations such as tramadol extended-release and oxycodone (eg, OxyContin and MS Contin [both manufactured by Purdue Pharma LP, Stamford, CT]) should not be used for acute pain.[18] High-potency opioids such as hydromorphone and oxycodone are typically unnecessary and should generally be avoided given their inherent risks, including misuse.

Tramadol is an inhibitor of serotonin and norepinephrine reuptake, as well as a μ-opioid receptor agonist. Inhibition of serotonin and norepinephrine reuptake enhances anesthesia but also increases the risk of adverse effects, such as dizziness, somnolence, and flushing, as well as drug interactions.[22]

Hydrocodone combined with acetaminophen is among the most commonly written prescriptions in the United States, and its overprescription has been an important contributor to the opioid epidemic.[23] However, for musculoskeletal pain, hydrocodone with acetaminophen provides relief superior to that

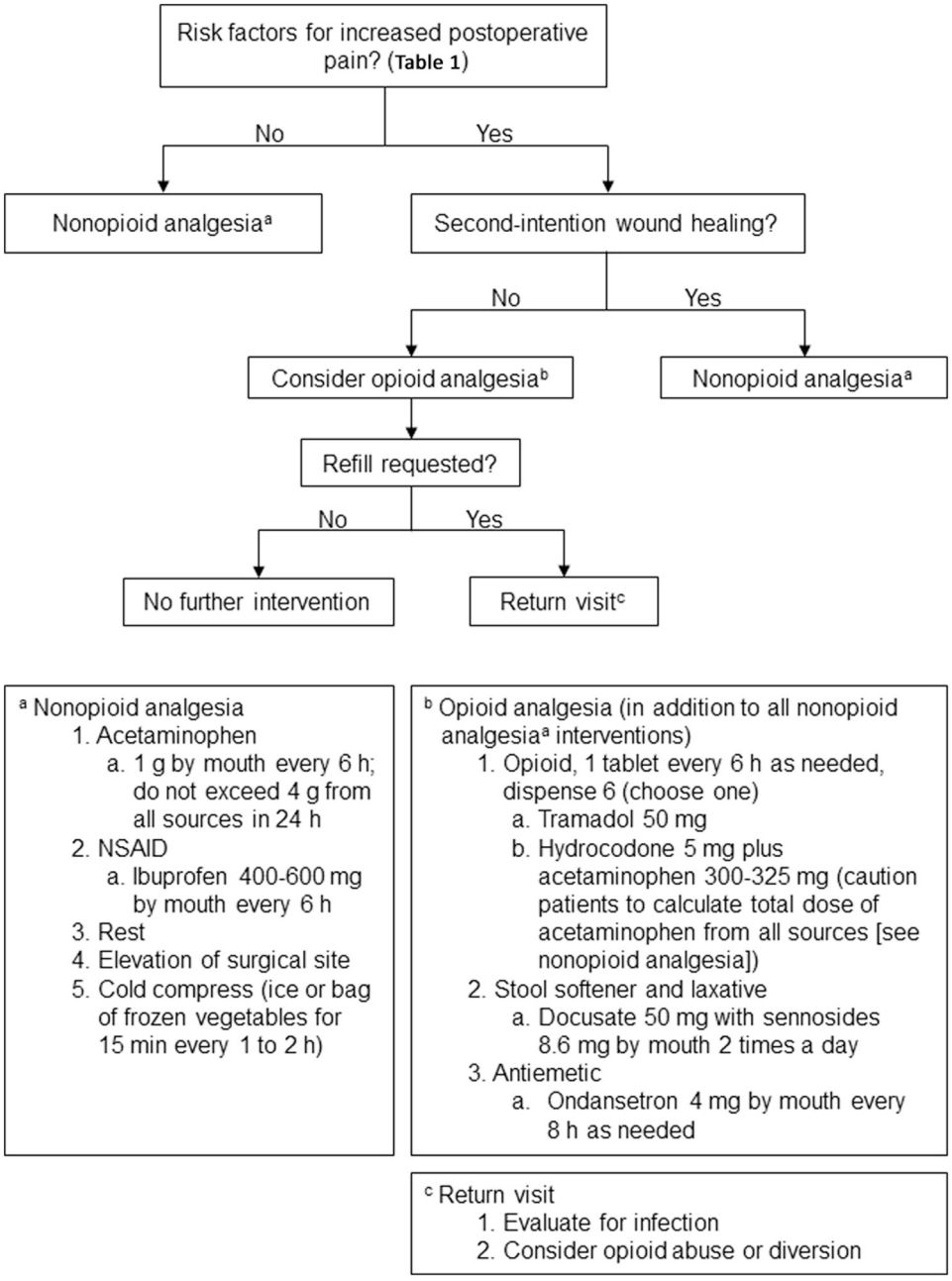

Fig 1. Recommendations for pain management in cutaneous surgery. Nonopioid analgesia involves (1) acetaminophen, 1 g orally every 6 hours, without exceeding 4 g from all sources within 24 hours; (2) a nonsteroidal anti-inflammatory drug (eg, ibuprofen, 400-600 mg orally every 6 hours); (3) rest; (4) elevation of surgical site; and (5) a cold compress (ice or bag of frozen vegetables) for 15 minutes every 1 to 2 hours. Opioid analgesia, given in addition to nonopioid analgesia, involves (1) 1 tablet every 6 hours as needed, with 6 tablets dispensed (either tramadol, 50 mg, or hydrocodone, 5 mg, plus acetaminophen, 300-325 mg) and cautioning the patient to calculate the total acetaminophen dose from all sources (eg, nonopioid analgesia); (2) a stool softener and laxative (docusate, 50 mg, with sennosides, 8.6 mg orally 2 times a day); and (3) an antiemetic (ondansetron, 4 mg orally every 8 hours as needed). At the return visit, clinicians should evaluate for infection and consider opioid abuse or diversion. *NSAID*, Nonsteroidal anti-inflammatory drug.

provided by tramadol alone.[24] In the United States, immediate-release hydrocodone is available only in combination with nonopioid analgesics, which may complicate the dosing of first-line nonopioid analgesics such as acetaminophen. For example, if a patient is instructed to take the maximum dose of acetaminophen before taking hydrocodone with acetaminophen, the patient may exceed the maximum acetaminophen dose if a tablet of hydrocodone with acetaminophen is taken for breakthrough pain.

Codeine requires metabolism to its active metabolite, morphine, to provide analgesia. Overall, 10% of the general public lack this enzyme and will receive no analgesia from codeine. The metabolism is inefficient in those who do metabolize codeine, producing several toxic metabolites. Up to 2% of patients are ultrarapid metabolizers and experience opioid toxicity from commonly prescribed doses.[25] Thus, codeine should be avoided as a first choice when an opioid is required.

Prescribing considerations

The US Code Controlled Substances Act categorizes medications into 5 schedules on the basis of their risk of misuse and dependency, as well as on the basis of their medical utility, with a lower schedule number representing greater risk. Tramadol is a schedule IV medication and codeine plus acetaminophen is a schedule III medication. Codeine without acetaminophen, all hydrocodone-containing products, and the other opioids listed in Table II are schedule II medications. The schedule II medications require the dispensing pharmacist to receive an electronic prescription or a paper prescription signed by the prescriber, and for these medications, refills are prohibited. Prescriptions for medications in schedule III and IV may be communicated electronically, orally, in writing, or by facsimile, and refills are permitted if prescribed.

CONCLUSION

Patients should be instructed to take acetaminophen and a nonsteroidal anti-inflammatory drug such as ibuprofen in addition to any opioid medication (preferably in a scheduled manner for the brief duration of opioid use) to improve pain control and minimize opioid use and complications. These recommendations are summarized in Fig 1.

Acute pain after cutaneous surgery is usually minor and does not require an opioid. Many nonopioid options are available, but the most effective for routine pain management after cutaneous surgery appears to be acetaminophen with ibuprofen.[8] Occasionally, opioid pain relief is required, but it should be limited to 36 hours of analgesia (a total of 6 pills dosed as 1 pill every 6 hours as needed). Refill requests should require a follow-up visit to evaluate the surgical site and determine the cause of ongoing pain.

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