An alternative to oral NSAIDs for acute musculoskeletal injuries

A topical NSAID can relieve acute musculoskeletal pain, with little risk of side effects.

**PRACTICE CHANGER**

For patients with acute musculoskeletal injuries, topical NSAIDs are an effective alternative for pain relief.1

**STRENGTH OF RECOMMENDATION**

A: Based on a meta-analysis of 47 high-quality randomized clinical trials.

**ILLUSTRATIVE CASE**

A 47-year-old man limps into your office complaining of ankle pain. The patient is well known to you and has a long history of dyspepsia, which is aggravated when he takes any oral nonsteroidal anti-inflammatory drug (NSAID). He injured his ankle while playing basketball. You diagnose acute ankle sprain. Would a topical NSAID be a safe option for pain relief for this patient?

Help for those who can’t take oral NSAIDs

Oral NSAIDs, however, are contraindicated for patients with a history of gastrointestinal bleeding and must be used cautiously in those with chronic kidney disease. Some patients can’t tolerate the adverse effects, which may include stomach upset, vomiting, and abdominal pain. Others may have medication interactions that prohibit use of oral NSAIDs.

Numerous high-quality, randomized, double-blinded placebo-controlled trials of topical NSAIDs have been conducted in recent years, involving diclofenac—the only topical NSAID available in the United States—as well as other topical agents on the market outside of this country. A recent Cochrane review, detailed below, assessed the efficacy of topical NSAIDs for patients with acute musculoskeletal injuries.

**STUDY SUMMARY**

Topical NSAIDs provided significant relief

This meta-analysis of 47 high-quality, randomized, double-blinded, placebo-controlled trials included 3455 patients with acute strain, sprain, sport, or overuse injuries.1 Four of the 47 trials, with a total of 746 participants, studied topical diclofenac.

There was significant heterogeneity in the studies included in the review, but each arm of every trial had at least 10 participants >16 years of age with a painful musculoskeletal injury sustained within the previous 48 hours. To be included in the Cochrane
meta-analysis, participants had to have used a topical NSAID at least once a day for ≥3 days.

The primary outcome measure was a reduction in pain ≥50% from baseline. Post-treatment data were obtained approximately 7 days after the injury. Of the patients receiving any topical NSAID, 65% (1181/1822) had successful treatment, compared with 43% (695/1633) receiving a placebo. The number needed to treat (NNT) with a topical NSAID instead of placebo was 4.5 (95% confidence interval, 3.9-5.3) to reduce pain ≥50%.

For patients using topical diclofenac, 52% (166/319) had a 50% reduction in pain, vs 25% (77/307) using a topical placebo. The NNT for topical diclofenac was 3.7, about the same as for oral NSAIDs.²

Adverse events were rare in the topical NSAID group: 6.3% had a local adverse event such as a skin reaction vs 5.9% in the topical placebo group. There were no systemic adverse events with topical diclofenac. While all topical NSAIDs combined showed a few minor adverse events compared with placebo, no serious systemic events were reported.

WHAT’S NEW

Topical NSAIDs are a useful alternative

Patients now have another option when seeking treatment for acute musculoskeletal pain. In addition to those who are unable to take oral NSAIDs, some patients may prefer a topical preparation because of perceived or actual side effects and safety profiles.

CAVEATS

Dosing intervals were not established

This meta-analysis included studies that examined a variety of dosing strategies and conditions, so an optimal dosing interval is not clear. However, the studies generally found evidence of benefit regardless of the acute condition and the amount and type of topical NSAID used. Diclofenac had the best results compared with other topical NSAIDs. Benzydamine, which is not sold in the United States, was the only topical NSAID not found to be statistically beneficial compared with placebo, based on 3 studies.

Topical NSAIDs have a small amount of systemic absorption, with blood concentrations about 5% of those from oral NSAIDs. However, patients with a strict contraindication to oral NSAIDs (for example, severe allergy) may also have a contraindication to topical NSAIDs. Also, all patients should be cautioned to avoid oral NSAIDs while using a topical preparation.⁶

Challenges to implementation

Topical NSAIDs are costly

In the United States, topical diclofenac is available only by prescription. This may create accessibility and cost differences between oral and topical NSAIDs. The average cost of a typical 10-day acute injury treatment of an adult with oral ibuprofen would be about $3 for plain tablets ($10 for extended release and enteric coated), vs about $65 for diclofenac gel, $113 for a diclofenac patch, and $66 for a diclofenac topical solution (www.drugstore.com, accessed December 2, 2010).

Physician inertia may also interfere with implementation. Physicians may not add a new medication to current prescribing options, although there appear to be no medical barriers to topical NSAIDs. This meta-analysis shows that topical NSAIDs are safe and effective for pain relief from acute injuries. JFP

Acknowledgement

The PURLs Surveillance System is supported in part by Grant Number UL1RR024999 from the National Center for Research Resources, a Clinical Translational Science Award to the University of Chicago. The content is solely the responsibility of the authors and does not necessarily represent the official views of the National Center for Research Resources or the National Institutes of Health.

References