What We Know About Using Topical Treatments for Musculoskeletal Pain

Although there is still much to be determined, these therapies appear to be effective and safe.

In last month’s column, we discussed how there is a compelling interest among clinicians to use topical agents for musculoskeletal pain but still a need for larger and better-designed trials to fully understand their benefit. This month, we’ll take a look at the two main classes of topical analgesics to assess their strengths, weaknesses and what is still left unanswered in the existing research.

NSAIDs

Non-steroidal anti-inflammatory patches are a common choice for topical applications, and in patients who are not easily susceptible to irritation they could work well. In a 14-day randomized, placebo controlled study involving 163 patients with an ankle sprain completed in France, a topical ketoprofen patch (100mg) proved superior to placebo in reducing pain after one week of treatment. Another group of investigators studied a similar ketoprofen preparation in patients with tendinitis; the results of this randomized, double-blind, placebo controlled study were also positive and the treatment was well tolerated except for skin irritation.

In a randomized controlled study of a diclofenac patch in 120 individuals experiencing acute pain following a “blunt” injury, use of the patch was well tolerated as well as significantly better as an analgesic than placebo in reducing the pain associated with this injury. In one open-label study of patients who generally described themselves as suffering, usually from “soft tissue pain,” the investigators concluded that topical flurbiprofen was associated with greater pain reduction than oral diclofenac with fewer adverse effects reported. In two other reported investigations, one an open-label study and the other a multicenter randomized, controlled two-week study of pain associated with acute sports injuries, a diclofenac patch was found to be effective in providing pain relief and was well tolerated. The average patient experienced 60 percent pain relief in the open label study.

Creams and gels have also proven efficacious. One controlled study examined the use of topical ibuprofen cream in the management of acute ankle sprains. This agent was found to be more effective than placebo in reducing pain. A controlled study of the use of ketoprofen gel in the management of acute soft tissue pain also found the gel was to be more effective than placebo in providing pain relief. The potential efficacy of a topical formulation of ibuprofen 5% gel was examined in a placebo-controlled study in patients with painful soft tissue injuries. Patients received either the ibuprofen 5% gel (n=40) or placebo gel (n=41) for a maximum of seven days. Pain intensity levels as well as limitations of physical activity were assessed daily using visual analogue and other scales. There was a significant difference (p<0.001) in pain reduction as well as improvement in physical activities for those patients who received the active gel compared to placebo recipients. In a second study performed by the same group of investigators involving similar types of patients, 50 patients were studied with similar outcomes seen.

It is no surprise that there has also been interest in studying the use of topical analgesics in the treatment of osteoarthritis. A diclofenac patch preparation has been studied in a randomized, double-blind controlled study to assess its potential benefits in patients with osteoarthritis of the knee. This study has demonstrated that the patch may be safe and effective for this condition. A separate randomized controlled study comparing the efficacy and side effects of a topical diclofenac solution to oral diclofenac in the treatment of osteoarthritis of the knee concluded that use of this topical diclofenac solution produced symptomatic relief equivalent to oral diclofenac with significantly reduced incidence of diclofenac-related GI complaints.

In a study of temporomandibular joint pain, a group of patients received diclofenac solution applied topically several times daily and a second group received oral diclofenac. Although there was no significant difference seen from an analgesic viewpoint, there were significantly fewer gastrointestinal side effects experienced by patients receiving the diclofenac topical solution.
A meta-analysis examining the use of topical NSAIDs in the treatment of osteoarthritis concluded that there was evidence that topical NSAIDs are superior to placebo during the first two weeks of treatment but not afterwards. In addition, this meta-analysis also concluded that available evidence suggested that topical NSAIDs were inferior to oral NSAIDs during the first week of treatment. A separate meta-analysis examining the evidence for the use of topical NSAIDs for chronic musculoskeletal pain concluded that topical NSAIDs are effective and safe in treating chronic musculoskeletal conditions for two weeks. The investigators suggested that larger and longer trials must be completed to fully understand the practical role of topical NSAIDs in clinical settings.

Patients commonly use topical salicylates in non-prescription preparations. A meta-analysis examining the potential benefit of topical salicylates in acute and chronic pain concluded that, based on the few studies that could be reviewed, topically applied rubefacients containing salicylates might be helpful in the treatment of acute pain but that available trials of musculoskeletal and arthritic pain resulted in moderate to poor efficacy. Adverse events were rare in studies of acute pain and poorly reported in those of chronic pain. The authors emphasized that efficacy estimates for rubefacients were at present unreliable since there is a lack of appropriate clinical trials.

A randomized controlled study completed in Germany examined the effect of topical etenac gel compared to placebo in 237 patients with osteoarthritis of the knee. This agent demonstrated efficacy and safety of the use of topical etenac in the treatment of osteoarthritis of the knee compared to placebo. In a separate study, topical etenac was compared to oral diclofenac and placebo in patients with osteoarthritis of the knee. While both therapies were found to be superior to placebo with respect to analgesia, as reported in the meta-analysis above, the incidence of gastrointestinal side effects was notably lower in the group treated with topical etenac gel compared to those treated with oral diclofenac. Three additional studies have demonstrated that topical diclofenac may be effective in reducing the pain associated with various types of degenerative joint disease.

Other topical agents have been studied in these conditions as well. There was no benefit from 0.025% capsaicin cream over inactive cream in a randomized, double-blind study of 30 patients with pain in the temporomandibular joint. A randomized controlled study of a topical cream containing glucosamine sulfate, chondroitin sulfate and camphor for osteoarthritis of the knee showed a significant reduction of pain in the treatment group after eight weeks compared to the placebo group.

There are no formal published reports of formal clinical trials exploring the use of a topical local anesthetic agent in the treatment of an acute soft tissue injury or in the treatment of osteoarthritis; however, two anecdotal reports of the use of the lidocaine 5% patch for an acute sports injury.

As a basketball fan I am particularly interested in the following: A professional basketball player with a ligamentous strain in his left fifth toe was advised by the team doctor to use the lidocaine 5% patch for pain relief with a good outcome and a professional football player with chronic acromioclavicular joint pain due to a dislocation was anecdotally reported to experience pain relief with use of the lidocaine 5% patch as well.

**Lower Back And Myofascial Pain**

Very few published studies of any topical analgesic in chronic low back or myofascial pain have been published. A double-blind, placebo controlled study comparing topical capsaicin to placebo in 154 patients with chronic low back pain did report that 60.8 percent of capsaicin treated patients compared with 42.1 percent of placebo patients experienced 30 percent pain relief after three weeks of treatment (p<0.02), without any deleterious side effects experienced in either group.

Other studies have been presented in an abstract form only and we will review them briefly. An open-label study of 120 patients with acute (<6 weeks), subacute (<3 months), short-term chronic (3-12 months) or long-term chronic (>12 months) low back pain was completed at eight sites in the United States. During the six-week study period, participants applied four lidocaine 5% patches to areas of maximal low back pain every 24 hours. Analysis of the first two weeks of data, presented at the 10th World Congress on Pain, suggested that the majority of patients experience moderate or greater degree of pain relief; a more complete analysis of these data as well as additional studies is expected soon.

In a double-blind study comparing topical capsaicin to placebo in 154 patients with chronic low back pain, 60.8 percent of capsaicin-treated patients compared with 42.1 percent of placebo patients experienced 30 percent pain relief after three weeks of treatment (p<0.02). Here, 15 of the capsaicin treated and nine of the placebo-treated patients experienced adverse effects none of which were believed to be harmful.

An open label study of patients with chronic myofascial pain was presented at the 2002 Scientific Meeting of the American Pain Society, 16 patients with chronic myofascial pain were treated with the lidocaine 5% patch. After 28 days of treatment, statistically significant improvements were noted for average pain, general activity level, ability to walk, ability to work, relationships, sleep and overall enjoyment of life in approximately 50 percent of the patients studied.