

Break the Pain Cycle With Iontophoresis

When patients come to you for pain relief, they want to feel better fast. You have many modalities to help achieve that goal. Iontophoresis should be on the list of options.

Although iontophoresis delivers less medication than a local injection, it packs a powerful punch by providing higher local concentrations than oral administration. Typical injection dosages range from approximately 0.5 mg for small joints up to 4.0 mg for large joints. Iontophoresis delivers 8 to 13 ug/0.5 gm of exercised tissue, about 100 times less than an injection. However, oral dosages result in concentrations of 7 to 200 mg/0.5 gm of exercised tissue, or 1,000 times less than the amount delivered by iontophoresis.

The medication introduced to the body through iontophoresis bypasses the gastrointestinal tract. This is important for several reasons. First, medication-sensitive areas typically aren't irritated and a patient experiences fewer symptoms of ulceration. Second, iontophoresis delivers medication to a specific injury site. And third, this modality reduces the incidence of constipation, a problem among patients who use pain medications and anti-inflammatories.

Iontophoresis can be an important healing component that helps you move into hands-on treatment modalities for conditions such as sciatica. By relieving pain, you can progress to other techniques that address specific problems so patients can resume higher levels of functional ability.

Of the drugs used, dexamethasone sodium phosphate is the main choice. But other solutions are producing excellent results, such as the following:

- **Ketoprofen 10 percent.** Ketoprofen is an alternative nonsteroidal anti-inflammatory drug that treats many of the same conditions as dexamethasone, such as tendinitis, bursitis, arthritis, spinal stenosis, acute sprains and strains. It works by inhibiting prostaglandin synthesis, which results in less inflammation and better analgesia. Effective for acute and chronic inflammation, ketoprofen can be used when patients don't respond well to dexamethasone or have plateaued in treatment.

You should have a working knowledge of the contraindications of dexamethasone and ketoprofen. For example, don't use dexamethasone with people who have a history of depression or diabetes. And ketoprofen is contraindicated in patients who take blood thinning medications or have aspirin allergies.

- **Potassium iodide (KI) 10 percent solution.** This is the recommended choice for treating scar and tendon adhesions. Potassium iodide can soften and remove collagen, which allows an area to be molded and stretched. A patient can increase range of motion and strengthen the overloaded muscle. Using negative polarity for three to six weeks, you can deliver iontophoresis three times weekly. You should expect to see results after eight to 10 treatments.

- **Acetic acid 2 percent to 5 percent solution.** This is the drug of choice for treating soft tissue mineralization, including heel spurs, calcific tendinitis and myositis ossificans. The negatively charged acetate ion combines with the relatively insoluble calcium carbonate to form the soluble compound calcium acetate. It's much more easily dispersed from the affected tissues by local blood flow. Protocols suggest treatment three times weekly, using negative polarity for at least four to eight weeks. Treatment results vary, depending on the patient and his ongoing stress to the affected area.

You should expect positive results after 10 to 12 treatments, although the degree of calcification plays a significant role in recovery. Consider using pulsed ultrasound or phonophoresis with deep myofascial release as an adjunct, depending on the patient's tolerance to myofascial release post-iontophoresis. This increases tissue mobility to break up the calcification.

- **Lithium 3 percent.** This drug competes with calcium, magnesium, potassium and sodium in body tissue at binding sites and alters sodium transport in nerve and muscle cells.

Other medications for iontophoresis are magnesium 2 percent, mecholyl 0.25 percent, and gabapentin (neurontin) 4 percent. Clearly, many chemicals can be used with iontophoresis. To be effective, however, the drug should be a preservative-free aqueous solution less than 8,000 daltons. (Preservatives can introduce competing ions into treatment and hinder effectiveness.)

Typically, iontophoresis, along with a combination of other modalities, yields predictable, positive outcomes. A negative response to treatment often indicates the existence of underlying factors. Ultimately, pain patients will be the beneficiaries of this effective and versatile modality.

—Charles Donley, PT

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