



MUSCULOSKELETAL MEDICINE, P.C.

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Overview of Prolotherapy Treatment

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Introduction:

Prolotherapy (prolo = prolifiration) involves the injection of medication into ligament and tendon attachments that initiates a regenerative healing reaction. The purpose of the treatment is to strengthen and heal the connective tissue in order to improve structural support and relieve pain. It is the damaged ligaments and other connective tissue structures that are thought to be the primary cause of chronic pain of musculoskeletal origin. Prolotherapy can effectively be applied to most cases of musculoskeletal connective tissue weakness including the spine and the extremities.

George Hackett, M.D., a surgeon from Ohio, introduced the procedure in the 1940s. He wrote numerous articles and monographs and presented his ideas several times at national conventions of the American Medical Association. My primary instructor, Dr. Gus Hemwall from Chicago, was a pupil of Dr. Hackett. Although some physicians consider prolotherapy a nontraditional treatment, many new physicians are adding prolotherapy to their practices each year. Today, there are hundreds of physicians and at least three recognized national medical organizations that teach and promote its use (American Association of Orthopaedic Medicine, American Academy of Osteopathy, American Osteopathic Academy of Sclerotherapeutic Pain Management).

Procedure:

Prolotherapy treatment usually involves a series of multiple injections. Multiple sites require treatment since connective tissue injury such as whiplash is often spread over a wide area. The solution is injected at the site of attachment to bone of weakened ligaments and tendons.

The prolotherapy solution is a mixture of several medications. Most treatments begin with a mixture of concentrated dextrose (a sugar) and lidocaine (a local anesthetic). The dextrose acts to dehydrate the cells after which a brief inflammatory reaction begins usually lasting 3 to 4 days. The inflammatory reaction is thought to attract many new cells including fibroblasts to the treated area. These cells are responsible for promoting collagen deposition, a key component of connective tissue. As collagen is produced and then added to the previously damaged tissue, the area is strengthened. When dextrose does not give the desired result, other medications may be used that are thought to

have different mechanisms of action. These medications may include P2G (a mixture of phenol, glycerin and glucose) or more recently aqueous testosterone.

After an appropriate evaluation, options for treatment are reviewed with each patient. Prolotherapy is recommended for chronic musculoskeletal pain disorders only after more conservative treatment methods have been unsuccessful. If it is decided to proceed with prolotherapy, a treatment appointment is scheduled. Prior to the treatment, reading materials are recommended and an attempt is made to answer all questions before proceeding. We encourage a family member or friend to attend all treatment sessions.

The area to be treated is carefully examined and the areas to be injected are marked with a skin marker. The patient is offered injections of local skin anesthesia and/or an injection of sedative medication if necessary to ease the pain of the injections. If sedative premedication is administered, patients are not permitted to drive themselves home.

The patient is then positioned properly on the table and appropriate monitoring is used. The actual injections usually take only 15 to 30 minutes depending on the area being treated. The patient remains in control and can take a break at any time during the treatment process if necessary. After the injections are completed, the patient is observed for a brief period and then discharged from the office when ready. If premedication has been given, the patient are required to arrange transportation home.

After the Procedure:

It is recommended that patients who have received more extensive treatments lie down for several hours after the treatment. Most patients experience 3 to 4 days of stiffness and soreness after the treatment. The post-procedure pain is generally tolerable but there are patients who require pain medication. Most patients may work the next day but not all, especially those performing physically demanding jobs.

Post procedure instructions include: Apply ice to treated areas as needed. Take acetaminophen (Tylenol) or previously prescribed pain medication for pain if needed. Call the office for additional pain medication if required. Perform activities as tolerated but do not overly stress the treated areas even if feeling well. Avoid anti-inflammatory drugs if possible since they theoretically interfere with the mechanism of action of the treatment. Patients are instructed to call the office immediately if any problems occur.

Complications/Risks:

As with all medical procedures, side effects must be discussed with all patients considering the procedure. Overall, prolotherapy is a relatively safe, effective treatment. Between seventy to eighty percent of patients treated experience some improvement in their pain. Results of a patient study performed in 1992 are available on request.

Numerous minor complications are possible including: allergic or adverse reaction to prolotherapy solution or premedication, bruising, dizziness, headache, nausea and vomiting, numbness or soreness lasting several weeks or more, skin abscess or other infection, phlebitis at

the site of the premedication injection. No infections or serious reactions to medications secondary to prolotherapy have occurred in my practice.

There are several infrequent serious complications that can occur. No patient that I have treated has suffered a complication that required admission to the hospital. All patients are appropriately monitored during the procedure. To my knowledge, no patient's pain has become worse in the long term after treatment in my office with prolotherapy.

One complication that can occur is a spinal headache. This results in a moderately severe headache when the patient is in an upright position but it disappears for the most part when lying down. The spinal headache usually lasts 7 to 10 days and generally resolves spontaneously. Another potential complication, when treatment is performed in the thoracic and rib area, is that of pneumothorax (collapsed lung). I have only had one minor case a number of years ago that resolved on its own in several days. A more serious case of pneumothorax may require hospitalization.

Other serious complications have been reported, but none has occurred in my practice since I began prolotherapy treatment in 1986. These include: permanent numbness, paralysis, and death.

Conclusion:

An adequate trial of prolotherapy generally consists of 3 treatments at 4 to 6 week intervals. Occasionally, injections will be recommended at closer intervals. If prolotherapy is going to succeed, there should be some degree of improvement in the patient's condition after these 3 treatments. If there is no improvement after 3 treatments, prolotherapy is usually discontinued.

Improvement is judged on the patient's pain as well as his or her level of function. Generally, most chronic pain treatments are considered successful if a 50% reduction of pain is achieved. Many of our prolotherapy patients achieve greater than a 50% improvement overall.

The treatment course is quite variable from patient to patient. Some patients improve substantially within several treatments while others have a prolonged treatment course. As the patient improves, the treatments are spread further apart and eventually discontinued after maximum benefit is attained.

Our goal in prolotherapy is to treat the underlying cause of the patient's pain and to achieve a permanent improvement in the patient's condition. There are a certain percentage of patients who receive only a temporary improvement and require ongoing treatment at regular intervals to minimize pain and maintain function. My goal in these patients is to treat them as often as necessary but as infrequently as possible.

Prolotherapy has proven itself in my practice and continues as one of my most effective treatments for chronic musculoskeletal pain.

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