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## Cortisone Injections

Steroid injections are commonly used for many types of orthopedic problems such as tendinitis, bursitis, fibrositis, fasciitis, arthritis, stenosing tenosynovitis, nerve compression syndromes and ligament injuries.

Corticosteroids are naturally occurring hormones made from cholesterol in the adrenal glands. When produced naturally in our systems, they affect, either directly or indirectly, most of the tissues in the body. The steroid has a direct effect on the production of important enzymes in the body. In clinical practice, steroid injections are used for their potent anti-inflammatory effects.

*Corticosteroids* should not be confused with *anabolic steroids* which are known for their use (or abuse) by athletes who take them for their muscle and strength building properties.

## Joint injections

Injections of corticosteroids into a joint is a common orthopedic treatment option for osteoarthritis (wear and tear or degenerative) and rheumatoid (inflammatory) arthritis. Other conditions treated by joint injections include gout, pseudogout and adhesive capsulitis.

Degenerative joint disease often first presents as inflammation in the lining of the joint (called the synovium), which results in swelling, pain and limited motion. An injection of a corticosteroid into the joint acts on this inflammation, which then decreases swelling, thereby diminishing pain and improving motion. Joint injections are excellent in resolving the acute inflammation associated with arthritis.

The results of corticosteroid therapy for osteoarthritis appear to depend on the joint injected. For more advanced osteoarthritis, long term relief is less likely probably due to existing mechanical problems and the weight bearing nature of these joints. Some short-term relief of pain and swelling does occur and this may help those awaiting a total joint replacement.

Smaller joints, in the hand and shoulder, appear to respond better to corticosteroid injections probably as a result of their non-weight-bearing nature.

In rheumatoid arthritis, corticosteroid injections provide long term relief primarily because this condition is inflammatory in nature rather than mechanical or degenerative.

## Ligament Injections

The most common sites for steroid treatment of ligament injuries include the elbow, knee and ankle. Injections are not made into the ligament directly but into the tissue around the ligament. The injection is part of an overall comprehensive treatment plan that may involve activity modification, physical therapy, ice, and splints.

The theory behind the use of steroids in ligament injuries is based on their anti-inflammatory effects to limit pain, to allow earlier motion, and to allow quicker healing.

An uncommon problem sometimes seen with these types of injections can include loss of skin pigmentation and subcutaneous atrophy in the area of the injection, which are not always reversible.

### **Tendon Injections**

Tendon injuries can be classified as tendinitis (inflammation of the tendon itself) or tenosynovitis (inflammation of the lining around the tendon).

Some forms of tenosynovitis respond well to corticosteroid injections. Patients with single trigger fingers of a short-term duration (less than 4 months) respond very well to corticosteroid injection (95% satisfactory results). Those with multiple trigger fingers for more than 4 months do not respond as well and will have shorter periods of relief. More of the patients in the latter group will require surgery for their trigger fingers.

Other tendon problems that are treated with injections include deQuervain's tenosynovitis, which is a tendinitis of the wrist.

The complications of steroid injection for tendon injury include tendon rupture, subcutaneous atrophy and loss of skin pigmentation.

### **Bursal Injections**

A bursa is a potential space located between 2 structures that move against each other. With repetitive stress or direct trauma the bursa can become inflamed. The most commonly affected bursa are in the shoulder (subacromial), hip (greater trochanter), elbow (olecranon), knee (prepatellar), and heel (retrocalcaneal).

The results of injections for bursitis depend on the site injected and the extent of the problem being treated.

### **Nerve Injections**

A variety of peripheral nerve compression syndromes may be treated with corticosteroid injections.

Carpal tunnel syndrome is the most common. Approximately 25% of patients treated with a corticosteroid injection may become symptom free. The injections seem to work best in patients with mild carpal tunnel syndrome for less than one year. Various studies have reported that between 13 - 40% of patients treated with injections and splinting remain symptom free for at least one year.

While steroid injections may not resolve most cases of carpal tunnel syndrome, it is an excellent method of confirming the diagnosis and excluding other sources of symptoms.

### **Overuse Syndromes**

Overuse syndromes includes conditions such as tendinitis, bursitis and fasciitis. They are typically due to athletic and work-related activities. Most overuse syndromes are due to repetitive loading, which causes mechanical fatigue and consequent degeneration of the tissue that cannot be healed as the tissue tries to repair itself.

Lateral epicondylitis (tennis elbow) involves degeneration, with inflammation, of the tendons that attach to the outside (lateral aspect) of the elbow. This condition responds very well to steroid injections if other treatments are started at the same time, including avoidance of aggravating activity, bracing (including tennis elbow straps or wrist splints), exercises to stretch and strengthen the injured tissue, equipment modification and non-steroidal anti-inflammatory medication.

## After the Injection

After the injection, strenuous and repetitive activity should be minimized for approximately 48 hours.

Ice should be applied to the injected area at least for the next 48 hours.

- Apply ice to the injected area at least 3 - 4 times a day for 20 minutes each time for the next 48 hours. This can reduce the painful “flare” reaction that can follow an injection the next day. This reaction can cause the area that was injected to hurt more the next day just from the injection. This will resolve within a day if it does occur.
- Use over-the-counter pain medications such as Tylenol to help with the pain if necessary.
- After 48 hours, icing the area may be continued if you find it beneficial.

The lidocaine or marcaine (commonly called Novocain) is an anesthetic agent that is injected with the steroid will typically relieve your pain for a few hours following the injection. If the “Novocain” and steroid are injected near a nerve, you may experience local numbness or weakness from the nerve block until it wears off. After this wears off your pain may return until the steroid takes effect.

The steroid may be effective immediately after the injection. Do not be concerned if the injection is not effective in relieving your symptoms immediately. In some cases, it may take *up to a week* for the steroid to work.

If you are diabetic, the corticosteroid may cause your blood sugar to become elevated for several days following the injection. This response usually lasts about 2 days before it returns to your normal level.

You should report any adverse reaction to your doctor. Call if there are any questions.

## Myths about Steroids

- *“Cortisone shots are very painful.”*
  - It is true that there is some pain associated with these injections. The “Novocain” typically hurts or burns more than the steroid itself. How much pain occurs depends on the location of the injection and the degree of inflammation or degeneration present. The pain experienced with injections is as different as patients themselves.
- *“Cortisone causes the bones to become weak and crumble.”*
  - The judicious use of a corticosteroid injection does not contain enough steroid to have any effect on the strength of the bones and does not lead to bone deterioration.
- *“Cortisone will cause the tendons or ligaments to become weak and rupture.”*
  - There is evidence that indicates that high dose of a steroid over a short period of time will lead to weakened tendons or ligaments. It is for this reason that low doses of the steroid medication are used and injections are not given to the same area more frequently than every 3-4 weeks.
  - A maximum of 3 injections into the same area is a common standard of care.
  - Whether you receive a second or third injection will depend on the kind of response you had the first one.
- *“Steroids will cause the development of muscles.”*
  - Corticosteroids, which are used for injections, will not cause this to occur.
  - Anabolic steroids (used or abused by athletes and those interested in rapidly building muscle mass and strength) may cause this to occur if taken orally over a long period of time. Anabolic steroids are not used for treating orthopedic conditions.