

Hyaluronic Acid (Viscosupplement Injections)

Background:

Hyaluronic acid injections (viscosupplements) are injectable agents which are used to treat the symptoms of osteoarthritis. This leaflet gives you some basic information about synovial joints, about what happens when you get osteoarthritis and about hyaluronic injections

What is a Synovial joint?

A synovial joint is one in which the ends of the bones are enclosed in a capsule containing a thick, slippery liquid called synovial fluid. The bone ends are covered in a smooth layer of a tough, rubbery substance called cartilage. The synovial fluid helps protect the cartilage from wear and tear by keeping the bones slightly apart and by acting as a shock absorber and lubricant. It also acts as a filter, letting nutrients reach the cartilage, but blocking the passage of harmful cells and substances. The most important component of synovial fluid is a substance called hyaluronic acid. It is this substance that allows the synovial fluid to perform its cartilage saving properties. Hyaluronic acid is continuously broken down and replaced. Normally, there is an exact balance between the breakdown of old hyaluronic acid and the production of new hyaluronic acid. In osteoarthritis, however, this balance is disturbed and breakdown happens faster than production. As a result, the synovial fluid becomes watery and stops working properly. As a result the cartilage in the joint gradually wears away. The thinning of the synovial fluid and wearing away of the cartilage leads to symptoms of osteoarthritis, which include pain, stiffness and swelling.

How do Hyaluronic Acid Injections work?

Injections can:

- Improve the viscosity of the synovial (lubricating) fluid.
- Reduce pain and swelling within the joint.
- Increase the articular cartilage depth on load bearing surfaces.
- These products can provide symptom relief but do not cure the underlying osteoarthritic disease process. The technique of supplementing the hyaluronic acid levels in a joint is called Viscosupplementation.

What brands of Hyaluronic Acid Injections do you administer?

We use either Ostenil (Mini or Plus) injections or Durolane injections.

Ostenil Mini (is used to treat small joints such as in the hand). Treatment usually involves a course of up to 3 injections. **Ostenil Plus** is used to treat larger joints such as the knee or hip. Ostenil Plus contains sodium hyaluronate along with 0.5% mannitol, a free radical scavenger which helps to stabilise the sodium hyaluronate chains thus increasing their residence time in

the joint. Treatment with Ostenil Plus usually involves a single injection.

Durolane injections are also given a single shot injection and contain a stabilised form of hyaluronic acid . The cost of *Durolane* is higher than that of *Ostenil Plus* but the beneficial effects of *Durolane* products may be longer-lasting in some cases.

How are the injections given ?

The area around the joint is prepared with anti-septic solution, and the injection done under aseptic conditions. An area of skin and the tissues underneath are numbed with some local anaesthetic - this may sting a little. A needle is inserted into the joint space, the Ostenil injected, and then the needle is withdrawn.

Please report any known allergies (drugs, elastoplast etc) to the doctor prior to the procedure.

What happens after the injection ?

You may notice some redness and warmth in the joint after an injection. You may continue with your normal everyday activities, but strenuous use of the joint should be avoided for 1 week.

How long does do the benefits of Hyaluronic acid injections last for?

Although a minority of patients do not respond to treatment, patients with mild to moderate osteoarthritis often see improvements in symptoms lasting around 6 to 12 months. However, this can vary from individual to individual. It should be noted however that patients with severe destructive osteoarthritis are far less likely to respond to treatment with these products, and for these patients, surgical joint replacement may offer the best solution.

There are a number of viscosupplement preparations on the market. We have chosen to stock Ostenil and Durolane products based on clinical studies.

In two separate clinical studies of osteoarthritis of the knee, Ostenil Plus was compared with another product called Synvisc-One. Both treatments led to significant pain reduction and increased functionality in the patients treated, although neither product demonstrated statistically significant superiority, despite Synvisc-One costing significantly more (*Trade cost of one Ostenil Plus syringe is £80 + VAT as compared to Synvisc-One at £205 + VAT per syringe*)

In another study, Durolane was also compared with Synvisc-One in patients with mild to moderate Osteoarthritis of the knee. This study found Durolane to be effective for longer both in terms of pain reduction and function than Synvisc-One. (*The trade cost of one Durolane Syringe is similar to that of Synvisc-One*)

Neither Ostenil nor Durolane products are of animal origin and both have a low incidence of side effects and allergenic potential.

For patients who do respond to treatment with hyaluronic acid, injections may be safely repeated. There are no known long term adverse effects with repeated injections of these products.

What are the possible risks and side effects of the treatment ?

The risk of a complication arising from injection with Ostenil or Durolane products is low and serious complications are extremely rare. However occasionally the following may occur and may require medical attention:

- Some individuals are susceptible to fainting during medical procedures. Faints result from a sudden short term fall in blood pressure. Please inform the doctor or podiatrist in advance if you feel this may be likely so that precautions can be taken
- Some patients experience deterioration in their symptoms for about 48 hours after the injection. Rest and simple pain killers usually help.
- Infection may be introduced into the joint or soft tissues as a result of an injection. This is extremely rare but can have very serious consequences if not identified and treated promptly. If you experience progressive warmth, swelling or worsening symptoms at the injection site particularly in association with fever, seek urgent medical attention.
- Allergy is rare and the products we use are associated with a lower risk of allergy than some other viscosupplement products on the market. Any serious allergic reactions (if they occur) are most likely to occur within 20 minutes of the injection. You should therefore remain in the clinic for 20 minutes following your procedure.
- Bleeding or bruising. This is more likely if you are taking certain medications for example aspirin, warfarin or other antiplatelet drugs and usually settles with simple pressure. If you experience severe swelling or bruising after the injection seek urgent medical attention.

Following Injection:

- You will normally be advised to rest the joint from any strenuous activities for a few days.
- Driving after an injection: The **site of injection, type of local anaesthetic used, the dose administered and the patient's individual response** are all factors which must be considered. We tend to use very low doses of local anaesthetic and for most injection sites in most people, this would not be expected to impair your ability to drive. However it is best to check with your practitioner and to also remember that patients are all individual in their response. On very rare occasions, a patient may experience more widespread temporary numbness or weakness as a result of the local anaesthetic than expected. Should this be the case, if your practitioner feels that this will impair your driving abilities, you will need to wait for the anaesthetic effects to wear off before you can drive. In an extreme case, this could take several hours.

NICE Guidelines

NICE is the National Institute of Clinical Excellence and as part of its role, it provides recommendations on the clinical and cost-effectiveness of various treatments. The recent NICE guidelines relating to Hyaluronic acid injections for osteoarthritis found that when studies using various hyaluronic acid preparations and their derivatives are looked at overall, there have been some disappointing results, particularly in osteoarthritis of the knee. As a result, NICE no longer recommends that these injections are used in the the management of osteoarthritis.

We know that these injections do not work for everyone. Studies have shown that between 20 and 40 percent of patients who are given hyaluronic acid treatment for knee osteoarthritis don't respond, and up until recently, studies have not provided any insight into which patients are most (or least) likely to benefit from them.

In June 2016, a new study, presented at the European League Against Rheumatism (EULAR) Annual Congress, aimed to identify characteristics or factors that might predict which patients with knee OA would most likely respond to HA injections. A team of French researchers, analyzed data from 166 patients who had participated in a controlled, randomized, double-blind clinical trial of hyaluronic acid injections for knee osteoarthritis. They found that these injections were less likely to work in patients who were overweight or obese, had more severe arthritis (with more joint space narrowing), were older than 65, or had had hyaluronic acid or corticosteroid shots in the past. The factors most strongly associated with a lack of response were being overweight or obese and having more severe arthritis. The more factors a patient had, the less likely it was that these injections would help: Their research found that 100 percent of patients who had none of the factors experienced improvements in pain and function compared to 69 percent of patients who had any two factors and only 28.6 percent of patients with all four factors.

It should be remembered that there are risks associated with long term use of non-steroidal anti-inflammatory medications taken orally, concerns about patients receiving too many corticosteroid injections and the fact that people are often having to wait longer for joint replacement surgery on the NHS as limited budgets create more restrictive criteria. For that reason, and because hyaluronic acid injections do offer welcome relief of symptoms in a great many patients, many doctors still feel that there is a role for hyaluronic acid injections in the management of mild to moderate osteoarthritis despite the current NICE guidelines.