Ultrasound guided hip injections

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This systematic review and meta-analysis has revealed that US-guided hip joint injections are significantly more accurate (100% Vs 72%) than those that are landmark guided.
Ultrasound-guide allows:
- A real-time visualization of the needle placement,
- The identification of neurovascular bundle and soft tissue structures and the aspiration of intra or peri-articular (for example iliopsoas bursitis) effusions,
- Ultrasound technique is more convenient, less painful, preferred by patients than fluoroscopy-guided injections and it produces no ionizing radiation,
- Ultrasound device is more portable and less costly than fluoroscopy or CT device.

INDICATIONS

- OSTEOARTHRITIS
- FEMOROACETABULAR IMPINGEMENT
- OSTEONECROSIS
- POST-TRAUMATIC HIP PAIN
- HIP DYSPLASIA
WHICH DRUGS?

- CORTICOSTEROIDS (CS)
- HYALURONIC ACID (HA)
- PLATELET RICH PLASMA (PRP)
- LOCAL ANESTHETICS
1. The American College of Rheumatology (ACR) advises corticosteroid injections as a first-line therapy for osteoarthritis of the hip.  


2. Intra-articular steroid injections (guided by ultrasound or x ray) may be considered in patients with a flare that is unresponsive to analgesic and NSAIDs.


3. A 2007 randomized controlled trial has also demonstrated clear efficacy without any complications.

CORTICOSTEROIDS

- Corticosteroid injections are useful to reduce inflammation and pain.

- The effects are rapid but short-term (2-4 weeks).

- Long term use is avoided because of an increase in the incidence of articular infection and several mechanical side effects such as cartilage breakdown and loss of cartilage elasticity.

HYALURONIC ACID (HA)

Viscosupplementation effects:

- Restoration of elastic and viscous properties of the synovial fluid,

- Antiinflammatory (reduce the production of proinflammatory mediators and MMP) and antinociceptive effects,

- Normalization of hyaluronan synthesis by synoviocytes,

- Delayed onset, but prolonged duration of clinical effects (6-12 months)
Studies suggest that VS in the hip is as effective as in the knee. It appears to be a safe and reasonable alternative to NSAIDs or intra-articular steroids for the treatment of osteoarthritis pain. VS may delay the need for hip replacement surgery. VS appears to work better in patients with fewer radiographic changes of osteoarthritis. Placement of HA in the hip under real-time ultrasound guidance is safe and well tolerated.
Can Viscosupplementation Be Used in the Hip? An Italian Perspective

FABRIZIO RIVERA, MD


Although the literature has unequivocally proven the possibility of reducing pain in patients affected by hip arthritis the molecular weight and density, the number of infiltrations required for long-term results, and the most appropriate indications for infiltration treatment have yet to be clarified. Selecting the patient is the first obstacle to be overcome.

The Authors compared the efficacy and safety of intra-articular hylan G-F 20 with methylprednisolone acetate (MPA) for treating symptomatic hip osteoarthritis.

_Hylan G-F 20 provided clinically meaningful improvements in pain and function, comparable with those of MPA, with good safety and tolerability. Adverse events were similar between groups. Thus, we conclude it is an appropriate option for treating hip osteoarthritis._
HYALURONIC ACID (HA)


This study supports the safety, tolerability and effectiveness of hylan G-F 20 in the treatment of symptomatic hip OA. Hylan G-F 20 may also offer economic benefits due to a reduction in NSAID usage and the resultant reduction in management costs of NSAID related side-effects. These data reflect those obtained in previous studies of hylan G-F 20 in patients with knee OA.
HYALURONIC ACID (HA)

- All 270 patients received a single IA administration of 2.5 % sodium hyaluronate (75 mg/3 mL) of high molecular weight. Fluoroscopy requires an iodized contrast medium (iopamidol, 1 ml) which highlights the capsule before administering HA.

- This study shows that a single IA injection of Coxarthrum is effective from the third month and that the results are stable or continue to improve up to 1 year.
The administration of hyaluronans under ultrasound-guided intra-articular injection is a safe technique for treatment of rheumatic diseases of the hip.

- The standardised technique was used to inject 1906 patients with 4002 injections of hyaluronans over a four-year period.
- The treatment was well tolerated with few and only local side effects.
The Author studied a patient's gait after ultrasound guided hip injections with HA.

- The patient showed an early clinical and biomechanical improvement during walking after a single intra articular injection of hyaluronic acid.

- Gait analysis parameters obtained suggest that the pre-treatment slower speed may be caused by antalgic walking patterns, the need for pain control and muscle weakness.

- After hip viscosupplementation, the joint displayed different temporal, kinetic and kinematic parameters associated with improved pain patterns.
Intra-articular Platelet Rich Plasma (PRP) injection:

- Stimulates chondral anabolism and reduces catabolic processes,
- Reduces cartilage fissures and Synovial membrane hyperplasia.

- Biological and mini invasive approach,
- Pain reduction and functional improvement,
- Few side effects.

- Decreasing effects at 12 months follow-up,
- Clinical results are more evident in younger patients and in early stages of OA.

References:
40 patients affected by monolateral severe hip OA were included in the study. Each joint received three IA injections of PRP, which were administered once a week.

This preliminary non-controlled prospective study supported the safety, tolerability and efficacy of PRP injections for pain relief and improved function in patients with OA of the hip.
Efficacy of Ultrasound-guided Intra-articular Injections of Platelet-rich Plasma Versus Hyaluronic Acid for Hip Osteoarthritis

Milva Battaglia, MD; Federica Guaraldi, MD; Francesca Vannini, MD, PhD; Giuseppe Rossi, MD; Antonio Timoncini, MD; Roberto Buda, MD; Sandro Giannini, MD

- 100 patients with chronic unilateral symptomatic hip OA were consecutively enrolled and randomly assigned to 1 of 2 groups: group A received PRP and group B received HA administered via intra-articular ultrasound-guided injections.
- Patients were evaluated at baseline and after 1, 3, 6, and 12 months using the Harris Hip Score (HHS) and visual analog scale (VAS).

Intra-articular injections of PRP are efficacious in terms of functional improvement and pain reduction but are not superior to HA in patients with symptomatic hip OA at 12-month follow-up.

The ultrasound-guided intra-articular treatment with platelet gel and after ialuronan in patients with symptomatic hip osteoarthritis demonstrates in almost all the treated patients (93.7% of cases) a significant reduction of subjective pain (on a VAS scores) and consumption of NSAIDs greater than the ialuronan or platelet gel alone.
FEMOROACETABULAR IMPINGEMENT


- 23 hips (3 bilateral cases) were treated.
- Each patient received a 2-ml intra-articular ultrasound-guided injection of HA at baseline and after 40 days; the same dosing schedule was repeated after 6 months. The clinical evaluation was performed at baseline and after 6 and 12 months of follow-up.
- Hyaluronic acid is safe and effective in the treatment of mild femoroacetabular impingement, with significant pain reduction and function improvement.
INJECTION TECHNIQUE

Sterile gloves
21 G green needle
20 G yellow needle
22 G black spinal needle

Betadine
Sterile ultrasound gel
Anterior parasagittal approach (superior or inferior) vs lateral approach.
INJECTION TECHNIQUE
INJECTION TECHNIQUE
MY PERSONAL ALGORITHM

Osteoarthritis:
- > 60 years old
  - Acute phase: 1° Corticosteroid; 2° HA (after 2 weeks); 3° HA (after 6 weeks)
  - Chronic phase: 1°-2°-3° HA at T0, after 2 and 6 weeks
- < 60 years old
  - Early OA: 1° PRP, 2°-3° HA after 2 and 6 weeks
  - Moderate/advanced OA: the same protocol of > 60 years old

Femoroacetabular Impingement:
- 1°-2°-3° HA at T0, after 2 and 4 weeks

Hyaluronic Acid 40 mg (800-1200 KDa)
Grazie
dell’attenzione