

Comparison of the efficacy of Intra articular Hyaluronic acid and Triamcinolone acetone in the treatment of Osteoarthritis of Knee

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ABSTRACT

Introduction: The aim of the study is to compare the efficacy of Intra articular Hyaluronic acid and Triamcinolone acetone in the treatment of Osteoarthritis of Knee.

Materials and methods: A Randomised Control Study was done in Dhanalakshmi Srinivasan medical college Hospital between May 2024 and November 2024. Ethical clearance was not obtained. A total number of 40 patients were included in the study. 40 patients were recruited in two groups namely Group A who received Hyaluronic Acid (HA), Group B received Triamcinolone Acetonide (TA). Assessment was done using VAS scale, after one week, one month & 6 months of getting Intra articular Injection. Using SPSS Software Mean & Standard Deviation was calculated.

Results: The mean age of the patients was 67.4 ± 8 years (Range 57-82). At first week mean VAS score was 3.25 ± 1.372 for HA and 2.55 ± 1.276 for TA ($p < 0.05$). After one month the VAS score was 3.05 ± 1.538 for HA and 3.1 ± 1.334 for TA ($p > 0.05$). After one month of injection the VAS score was 3.4 ± 1.429 for HA and 3.85 ± 1.182 for TA ($p > 0.05$).

Conclusion: After one week of Intraarticular injection, TA group had less pain compared to HA group. Both the groups have significant decrease of pain clinically, but there was no significant decrease pain between the groups statistically after one month and 6 months.

Keywords: Osteoarthritis Knee, Hyaluronic Acid, Triamcinolone Acetonide, Intra Articular Injection, Pain, Intra articular Injection.

1. INTRODUCTION

Osteoarthritis of knee is a degenerative disorder characterised by cartilage loss, inflammation of the joint and bone remodelling resulting in pain and gradual deformity of the knee joint. Most commonly affects elderly patients. Synovial membrane in OA knee is said to have the source of pro inflammatory cytokines which is responsible for symptoms and progression via cartilage destruction(1,2). Females are more commonly affected. Radiological evidence of OA knee is mostly observed in the age group of 60-75 years(3). OA Knee is associated with pain which affect the quality of life. Though physiotherapy is said to improve functional recovery, Intra articular injections are more frequently used in symptomatic patients with OA Knee(4).

Hyaluronic Acid (HA) is a Glycosaminoglycan which exists in Joint fluid(5). It inhibits chondro- degenerative enzymes and it helps to stimulate chondrocyte metabolism and synthesis of cartilage matrix thereby reduces the inflammation(6). Some authors reported the use of HA for reducing pain and improving functional status in both young and old patients over a short period of time(6).

Many studies have proven the efficacy of intra articular steroids such as TA(7,8), Methyl Prednisolone(5), Hydrocortisone in

patients with Osteoarthritis of knee. Several studies reported the effectiveness of Triamcinolone Acetonide (TA) in controlling the pain in OA Knee. Though it improves the functional quality of the joint with minimal pain, cartilage safety and longterm OA progression should also be noted. It may lead to long term damage to the joints due to catabolic effect of Corticosteroids which have negative effects to chondrocytes(6).

The aim of the study is to compare the efficacy of Intra articular HA and TA in improving the functional recovery in the patients with osteoarthritis of knee.

2. MATERIALS AND METHODS

A Randomised Control Study was done in Dhanalakshmi Srinivasan medical college Hospital between May 2024 and November 2024.

Inclusion Criteria: Mild to Moderate osteoarthritis of Knee, 50-65 years of age

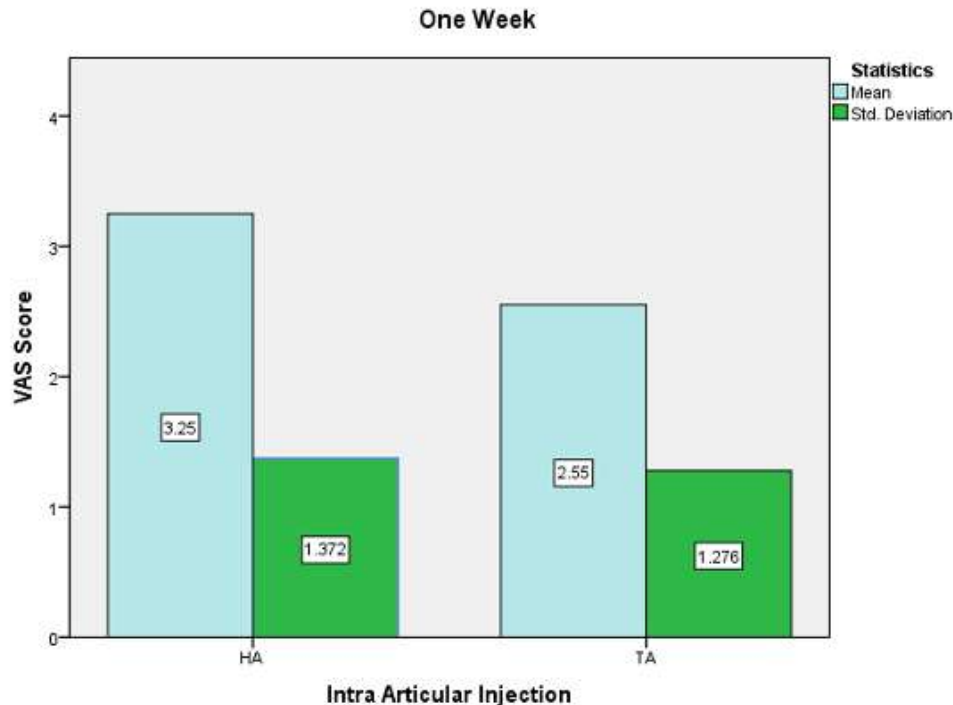
Exclusion Criteria: Patients with Uncontrolled Diabetes, Those who received the Steroid Injection within 6 months,

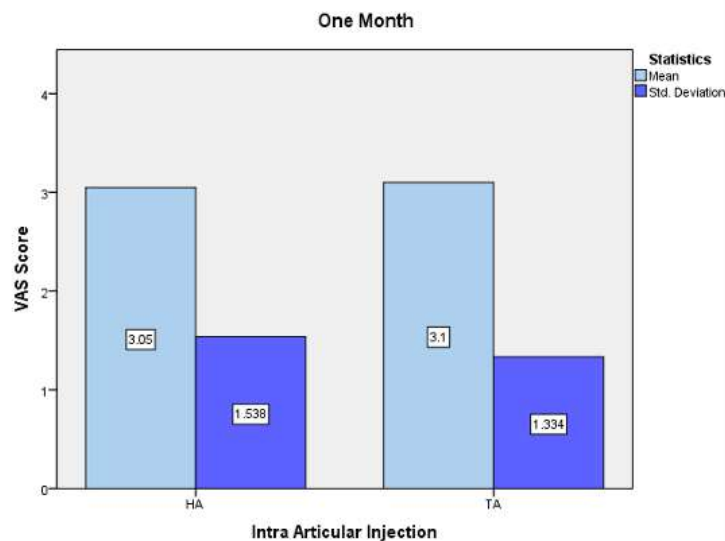
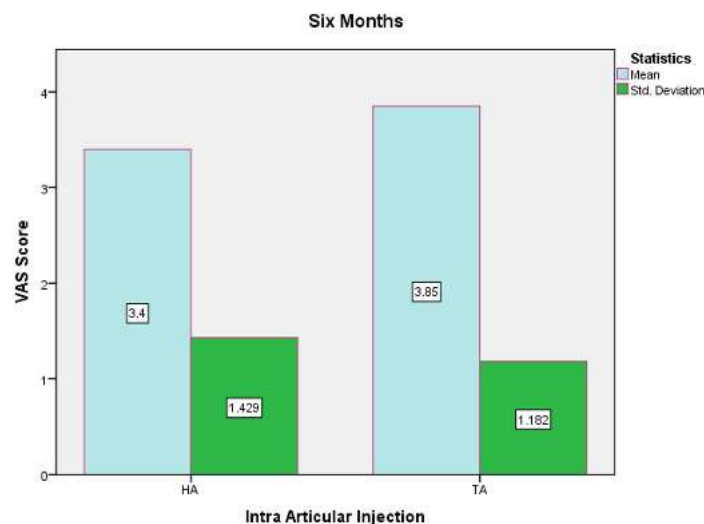
The study comprised of 40 patients who were randomly recruited in two groups. Simple Randomisation was done using shuffled cards. Group A had 6 Male Patients and 14 Female patients, Group B had 8 Male and 12 female patients. All the patients were asked to discontinue NSAIDs. Assessment was done using VAS scale for pain after one week, one month & 6 months. Also local tenderness, stiffness were also noted. G Power was used to calculate the sample size.

3. RESULTS

Group A received 60mg Hyaluronic Acid (HA) and Group B received 40mg Triamcinolone acetonide(TA). Pain was assessed using VAS Scale after one week, one month and 6 months. The mean age of the patients was 57.4 ± 8 years (Range 50-65). At first week mean VAS score was 3.25 ± 1.372 for HA and 2.55 ± 1.276 for TA ($p < 0.05$) (Table/Fig-1). There was a significant decrease of pain in TA group. After one month the VAS score was 3.05 ± 1.538 for HA and 3.1 ± 1.334 for TA ($p > 0.05$) (Table/Fig-2). There was no significant difference in the pain. After one month of injection the VAS score was 3.4 ± 1.429 for HA and 3.85 ± 1.182 for TA ($p > 0.05$) (Table/Fig-3) and there was no significant decrease in the pain scale.

Table/Fig-1- Pain score after 1 week Post Intraarticular Injection



Table/Fig-2- Pain Score after one month of Intraarticular Injection**Table/Fig-3- Pain Score after Six Months of Intraarticular Injection**

4. DISCUSSION

In this study patients who received TA had significant decrease of pain after one week than HA. But after one month and six month the efficacy remained the same for both the groups.

Osteoarthritis of knee is a degenerative joint disease and it commonly affects more than one third of people over 60 years of age(6). Most common symptoms associated with it is pain and deformity(6,9). Previously conducted meta-analysis on Intra articular Injection of OA knee stated that Intra Articular Corticosteroid Injection effectively reduced pain both clinically and statistically(6). The mechanism by which it reduces the pain is not clear yet but it is thought that Corticosteroids inhibit leukocyte secretion from synovial cells thereby decrease the synthesis of ILs and PG(10). Synovial membrane in Osteoarthritis has been shown to be the primary source of Proinflammatory cytokines which may be responsible for the symptoms and deformity occurs by cartilage destruction. Extracellular matrix of the cartilage contains HA(6). Several pilot studies suggest that it could inhibit chondro-degenerative enzymes thereby protects the cartilage from destruction.

Bowman et al. showed that intra-articular HA had an anti-inflammatory effect and benefited in improving function(6). Intra articular injection of Triamcinolone acetonide decreased pain significantly and similar findings were observed by A RCT done by Pelletier JP who stated that repeated administration of Corticosteroids was effective in controlling pain and it does

not destroy the anatomical structure of the knee(11,12). In this study there was a significant decrease in the pain after one week in TA group but there was no significant difference after one and 6 months of injection. Similar findings were observed by (13–15). The similarity of effectiveness of HA and TA is encouraging because there are no theoretical risk associated with the use of HA. of e

Limitation: Nil

5. CONCLUSION:

Intra articular Injection of HA and TA have a major role in reducing the pain in case of mild to moderate Osteo arthritis of knee. Though TA group had significant decrease in pain, HA has no theoretical risk. So use of HA is better than TA in controlling Osteo Arthritis of Knee.

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