ISAKOS CONGRESS 2025 | MUNICH GERMANY June 8–11 | SGRH

Comparison of the clinical and functional outcomes in patients with osteoarthritis of the knee joint with or without intra-articular hyaluronic acid treatment

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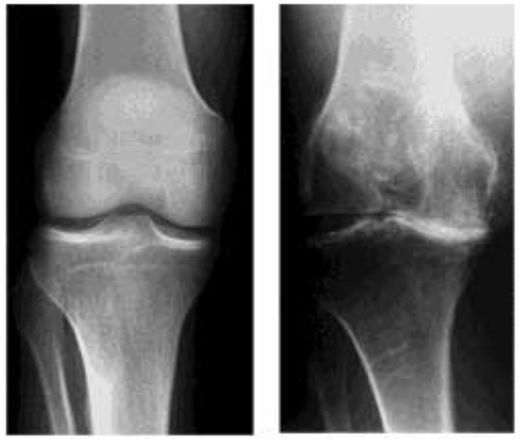
Background

- Various modes of treatment are available to manage osteoarthritis (O.A.) like anti-inflammatory medications (NSAIDs), physiotherapy, modification of lifestyle, I.A. corticosteroids, and intra-articular hyaluronic acid (IAHA)

- I.A. corticosteroid use improves the symptoms in the short term, but some evidence supports it's harmful effects on joints in the long run

- IAHA has shown beneficial effects in O.A, though some studies have demonstrated equivocal effects to placebo

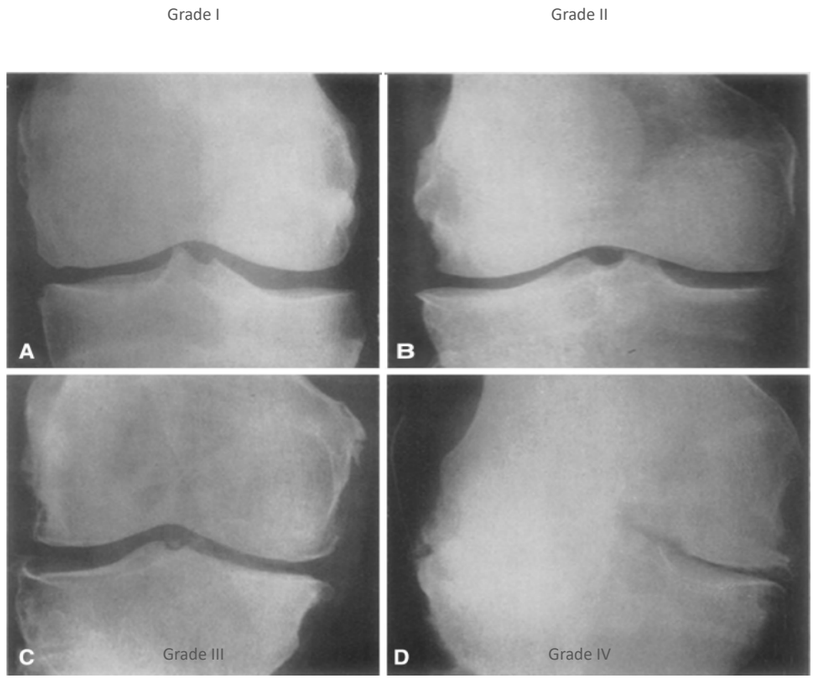
- **There are no conflicts of interest and disclosures**



Aims and Objectives

- The study aims to evaluate and compare the clinical and functional outcomes in patients with or without intra-articular hyaluronic acid (IAHA) treatment given for Kellgren and Lawrence grade I, II, III O.A. of the knee

- Our focus was to assess the efficacy of IAHA in alleviating pain and improving functional outcomes



KELLGREN AND LAWRENCE GRADING

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Methods

- This is a prospective, randomised controlled study which took place from June 2015 to June 2023 conducted by Sports Medicine Unit at Sir Ganga Ram Hospital, New Delhi, India
- Patients with OA knee were randomly (lottery method) assigned to one of the two groups :-
  - Group A (control group) were managed conservatively with oral anti- inflammatory drugs and physiotherapy
  - Group B (H.A. injection group) with IAHA injection (6ml Hylan G-F 20) along with same oral anti- inflammatory drugs and physiotherapy

Methods- Scoring Systems

- Assessment of the effect of IAHA in patients with grade I, II and III osteoarthritis knee were done before the procedure and at 6 weeks, 3 months, 6 months and 1 year post-procedure

➢ **Clinical assessment:**

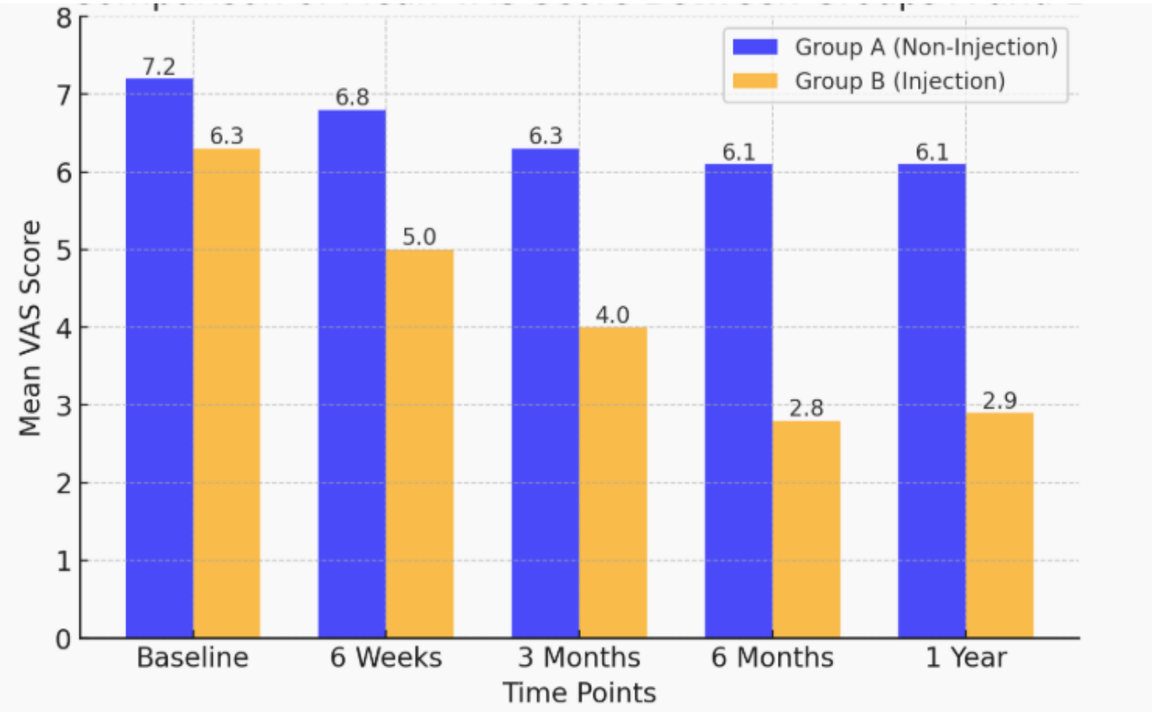
- Physical exam
- Pain - VAS score

➢ **Functional assessment:**

- Pain, stiffness, physical function - WOMAC score
- Symptoms, sports activities, functions - IKDC score
- Pain, symptoms, activity of daily living, knee-related quality of life, sports and recreation - KOOS score

Result - VAS Score

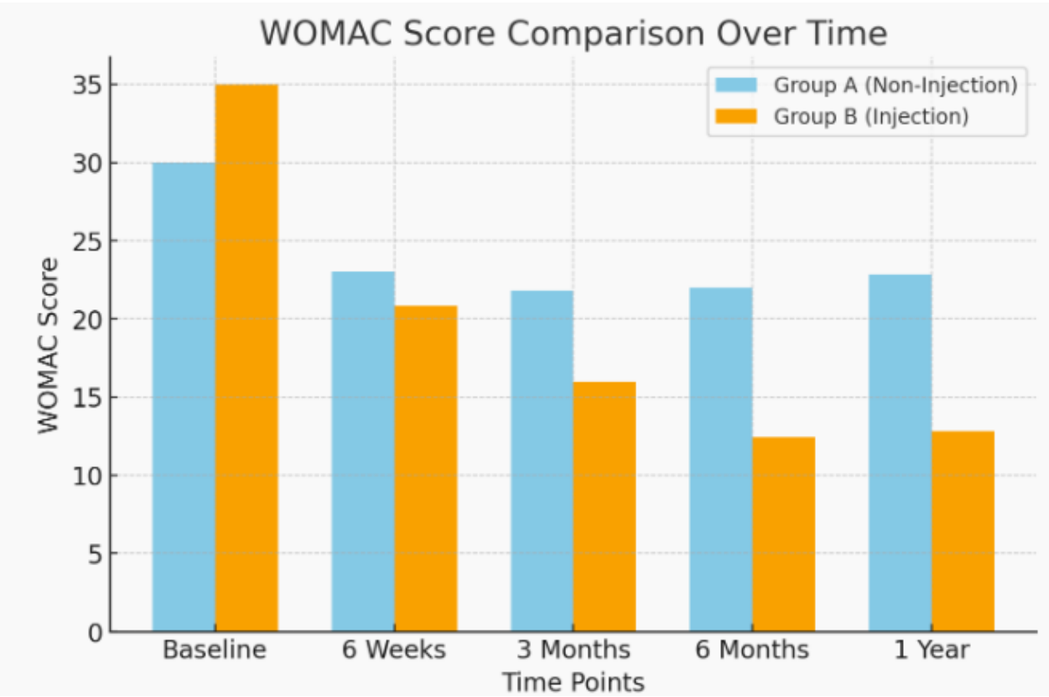
- 240 patients (120 patients in each group)
- Significant improvement (P<0.001) in Group B (H.A. Injection group) till 6 months post procedure
- Loss of further improvement at 1 year follow up in Group B
- Significant pain relief at 1 year follow up from baseline values and Group A



	Baseline	6 weeks	3 months	6 months	1 year
Group A (Non Inj)	7.2±1.0	6.8±1.0	6.3±1.2	6.1±1.2	6.1±1.2
Group B (H.A. Inj)	6.3±0.1	5.0±1.0	4.0±1.2	2.8±1.1	2.9±1.2

Result - WOMAC Score

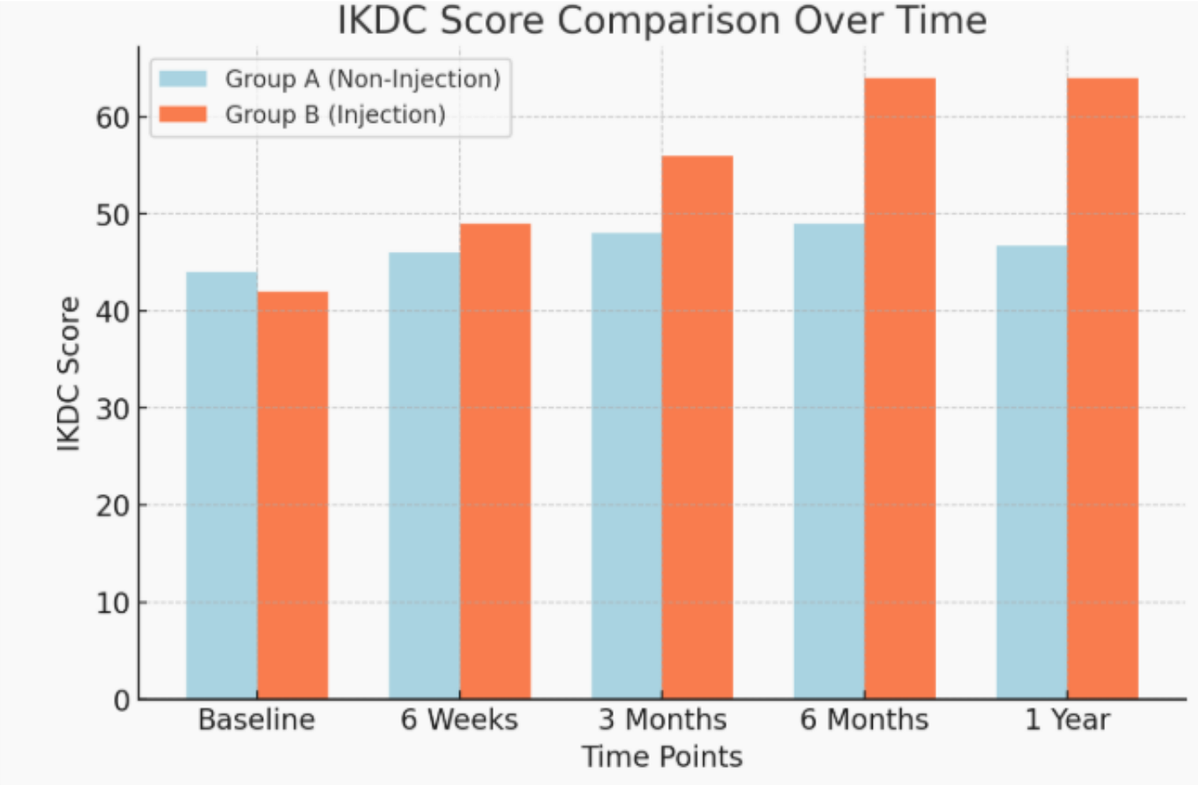
- Significant improvement in physical function (P<0.001) in Group B (H.A. Injection group)
- Significant pain relief at 1 year follow up from baseline and Group A



	Baseline	6 weeks	3 months	6 months	1 year
Group A (Non Inj)	29±13.8	23±4.1	21.8±4.2	22±5.3	22.8±5.4
Group B (H.A. Inj)	35±16.5	20.8±7.3	16.0±5.9	12.4±4.6	12.8±5.8

Result - IKDC Score

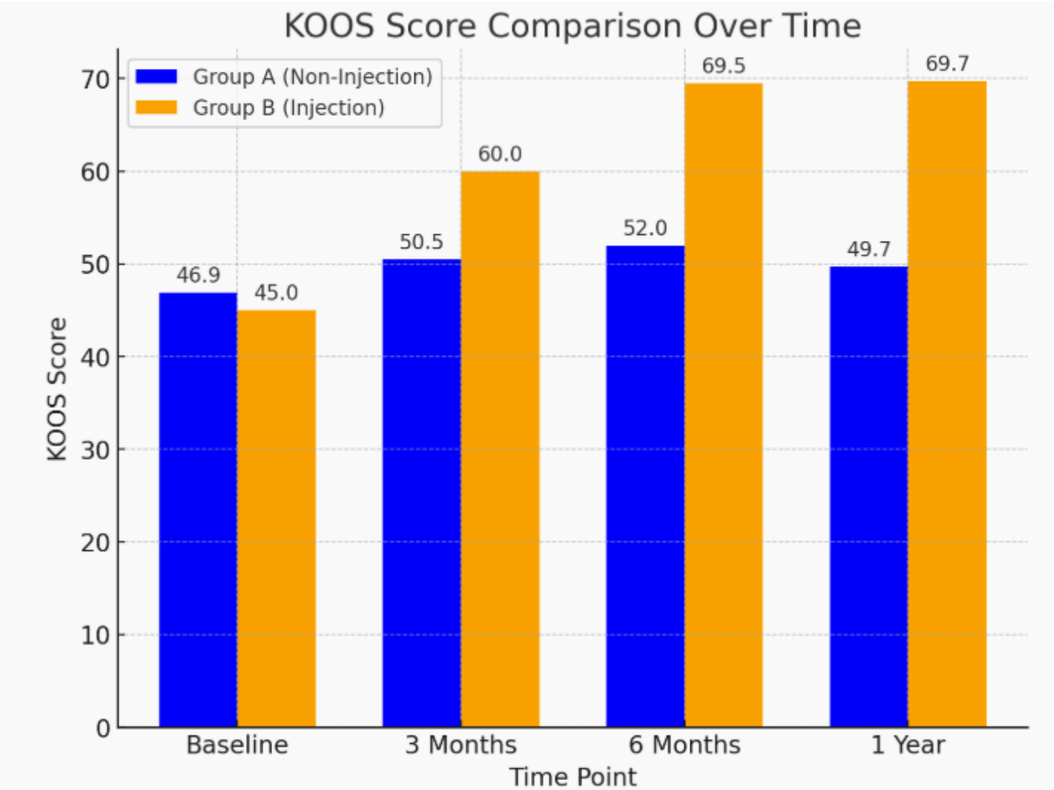
- Significant improvement in functional outcomes (P<0.006) in both groups
- Improvement in Group B out-performing Group A (P<0.05)



	Baseline	6 weeks	3 months	6 months	1 year
Group A (Non Inj)	44±4.2	46±4.5	48±5.7	49±6.1	46.7±6.2
Group B (H.A. Inj)	42±8.5	49±6.0	56±8.0	64±10.0	64±10.0

Result - KOOS Score

- Both control and treatment group showed improvement from baseline values
- Significantly greater improvement in outcomes (P<0.01) seen in Group B (H.A. Injection group)



	Baseline	3 months	6 months	1 year
Group A (Non Inj)	46.9±6.1	50.5±6.4	52±7.0	49.7±8.5
Group B (H.A.Inj)	45±6.9	60±8.0	69.5±10	69.7±9.3

Discussion

- Exogenous Hyaluronan (H.A.) preparations are used to treat osteoarthritis by replacing low viscoelastic synovial fluid with higher viscosity solutions and has been shown in the literature to improve pain and function

- A study by **Chevalier x et al**. showed that the WOMAC score among the Hylan group had a significant improvement at the end of 6 months with p-value <0.005, while in our study, the WOMAC score in group B at the end of 6 months was highly significant with P-value <0.0001 and the improvement in score has been maintained till 1 year follow up

- In a study by **Lin kuan et al**. the IKDC score among the Hylan group at 6 months showed a significant improvement with a p value <0.005, while in our study the IKDC score in group B at the end of 6 months was highly significant with p<0.0001 and similar improvement has been seen at the end of 1 year follow up

Conclusion

- We found significant improvement in the VAS score, WOMAC score, KOOS score and IKDC score in study group patients as compared to the control group

- Intra-articular hyaluronic acid, in short term, effectively alleviates pain and improves function in Kellgren and Lawrence grade I, II, III OA knee

- We conclude in our study that IAHA can be used as a promising non-surgical alternative

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