

Yong Ping (2012): Head-to-Head (GenVisc 850 vs. Supartz/Supartz FX) Randomized Controlled Study

The Yong Ping study was a parallel-controlled, randomized, multi-center clinical conducted at five hospitals. The objective of the trial was to evaluate the comparative efficacy and safety of GenVisc 850 intra-articular injections for the treatment of degenerative osteoarthritis knee pain to Supartz/Supartz FX.

A total of 229 subjects were enrolled with 113 in the Supartz/Supartz FX treatment group and 116 in the GenVisc 850 group. Of those, 92.9% and 93.1% in the Supartz/Supartz FX and GenVisc 850 groups, respectively, completed the trial. Each group received 5 injections of the respective product at weekly intervals.

The average age was 62.3 years in the Supartz/Supartz FX group and 74% of the subjects were female. The average age was 61.9 years in the GenVisc 850 group and 80% of the subjects were female. In both groups, the average weight was 66 kg. There were no statistically significant differences in demographic characteristics.

Primary Effectiveness: In the full analysis set (FAS) population, the VAS pain on movement of the Supartz/Supartz FX group at week 6 decreased by 48.0 ± 23.39 mm compared to baseline, and that of the GenVisc 850 group decreased by 49.2 ± 21.50 mm. The difference between the two groups was not statistically or clinically significant ($P > 0.05$). These analyses are shown in Table 4.

Table 4: VAS pain on movement (mm) and baseline variations (Week 6 - Baseline) (FAS)

	Supartz/ Supartz FX group	GenVisc 850 group	Statistics	P value	Method
N	113	116	0.403	0.688	t test
Mean \pm SD	-48.0 ± 23.39	-49.2 ± 21.50			
95%CI(Lower- Upper)	-52.33–43.61	-53.12–45.21			
Min-Max	-95.0–1.00	-90.0–17.00			
Median	-50.00	-50.25			

Meta-Analysis of 4 Studies Using Bayesian Modeling

To further support the clinical similarities between GenVisc 850 and Supartz/Supartz FX, a prospective meta-analysis of the pivotal studies for both products was undertaken using Bayesian longitudinal modeling. The studies analyzed include:

- For GenVisc 850, two saline-controlled studies (AMELIA² and Blanco³); and
- For Supartz/Supartz FX, two saline-controlled studies conducted in Australia⁴ and Sweden⁵.

Primary Objectives of the Bayesian Analysis:

- Supartz/Supartz FX is superior to PBS. The null hypothesis is that PBS is superior to Supartz/Supartz FX. Rejection of the null hypothesis will in effect validate the statistical approach and modeling as it duplicates the results of the approved PMA for Supartz/Supartz FX.
- GenVisc 850 is superior to PBS. The non-inferiority margin for addressing this objective is 4 mm.

Supporting Objective of the Bayesian Analysis:

- GenVisc 850 advantage over PBS is non-inferior to Supartz/Supartz FX's advantage over PBS. The non-inferiority margin for addressing this objective is 4 mm.

Results of Meta-Analysis of 4 Studies Using Bayesian Modeling

Primary Analysis: For the primary analysis, which pools all data from post-baseline visits for all treatments in all studies, the estimated between-study variability (T) was examined and found to be acceptable for superiority and non-inferiority assessments.

The Gelman-Rubin convergence statistic was very close to 1, thus indicating convergence of the sampler. Overall the model fits the data well.

Primary Analysis

The posterior probability of superiority of GenVisc 850 vs. PBS is 79% at week 30 (mean 6.88 mm advantage) thus giving confidence that GenVisc 850 is superior to PBS up to 30 weeks.

Secondary Analysis

For the primary and supporting analyses, differences in mean change from baseline between GenVisc 850 and PBS were examined. Paucity of data towards the end of the time interval causes an increase in variance and therefore the posterior probability of non-inferiority does not increase. The posterior mean difference between effect GenVisc 850 and Supartz/Supartz FX was always below the non-inferiority margin with a posterior probability of 50%, but the scarcity of data limits the ability to declare non-inferiority of GenVisc 850 to Supartz/Supartz FX for the interval extending to 30 weeks.

Further details of the primary and secondary analysis assessments are provided below in Table 5 and Figure 1.

¹ GenVisc® is a registered trademark of Channel-Markers Medical, LLC. GenVisc 850 is sold outside the U.S. under the branded name Adant®, a registered trademark of Meiji Seika Pharma Co., Ltd.

² Navarro-Sarabia F, Coronel P, Collantes E, Navarro FJ, de la Serna AR, Naranjo A, Gimeno M, Herrero-Beaumont G; AMELIA study group. A 40-month multicentre, randomised placebo-controlled study to assess the efficacy and carry-over effect of repeated intra-articular injections of hyaluronic acid in knee osteoarthritis: the AMELIA project. *Ann Rheum Dis*. 2011;70: 1957-62.

³ Blanco FJ, Fernández-Sueiro JL, Pinto-Tasende JA, Fernández-López JC, Ramallal M, Freire A et al. Intra-articular hyaluronan treatment of patients with knee osteoarthritis waiting for replacement surgery. *The Open Arthritis Journal* 2008; 1: 1-7.

⁴ Day, R. et al. A double blind, randomized, multicenter, parallel group study of the effectiveness and tolerance of intraarticular hyaluronan on osteoarthritis of the knee. *J Rheumatol* 2004; 31: 755-782.

⁵ Lohmander LS, Dalén N, Englund G, Hämäläinen M, Jensen EM, Karlsson K, Odensten M, Ryd L, Sernbo I, Suomalainen O, Tegnander A. Intra-articular hyaluronan injections in the treatment of osteoarthritis of the knee: a randomised, double blind, placebo controlled multicentre trial. *Hyaluronan Multicentre Trial Group. Ann Rheum Dis*. 1996; 55: 424-31.

WHAT ADVERSE EVENTS WERE OBSERVED IN THE CLINICAL STUDIES?

In the GenVisc 850 treatment group for one of the clinical studies, performed in Spain, 15 reported adverse events included pain at the injection site (6), allergic reaction (3), arthralgia (2), bleeding at the injection site (2), bleeding (1) and heaviness (1). In the GenVisc 850 treatment group for the clinical study performed in the People's Republic of China, two adverse events were reported, 1 report of local pain and 1 report of rash. There were no significant differences in the rate of occurrences of adverse events between patients injected with GenVisc 850 and patients injected with Supartz/Supartz FX or saline.

WHAT OTHER TREATMENTS ARE AVAILABLE FOR OA?

If you have OA, there are other things you can do besides getting GenVisc 850. These include:

Non-drug treatments

- Avoiding activities that cause knee pain
- Exercise
- Weight loss
- Physical therapy
- Removal of excess fluid from your knee

Drug therapy

- Pain relievers such as acetaminophen and narcotics
- Drugs that reduce inflammation and pain (signs of inflammation are swelling, pain or redness), such as aspirin and other nonsteroidal anti-inflammatory drugs (NSAIDs) such as ibuprofen, naproxen and Celebrex
- Steroids injected directly into your knee

THINGS YOU SHOULD KNOW ABOUT GENVISC 850.

- GenVisc 850 is only for injection into the knee, performed by a doctor or other qualified health care professional.
- If you have pain in both knees, the effects of pain relief on the knee opposite to the one injected have not been evaluated. Your doctor may recommend that both knees be injected.
- After you receive the injection, you may need to avoid strenuous activities such as jogging, tennis, heavy lifting, or standing for a long time for approximately 48 hours.
- If any of the above symptoms or signs appear after you are given GenVisc 850, or if you have any other problems, you should call your doctor.

WHY IS MY DOCTOR RECOMMENDING I RECEIVE GENVISC 850?

GenVisc 850 is indicated for patients with osteoarthritis knee pain who do not obtain adequate relief from simple painkillers, like acetaminophen (Tylenol®), or from exercise and physical therapy. Ask your doctor for additional information and discuss your treatment options.

IS GENVISC 850 APPROVED FOR USE IN THE U.S.?

GenVisc 850 was approved for use in the United States in September 2015.

GenVisc 850 has demonstrated a very favorable safety profile, with over 35 million doses administered worldwide since its first approval, and has been

studied in over 30 clinical trials for use in relieving osteoarthritis knee pain.

WHAT IS GENVISC 850 MADE FROM?

Hyaluronic acid is a natural chemical found in almost all species and various parts of your body. It is in high amounts particularly in joint tissues and in the fluid that fills the knee joint space (synovial fluid). GenVisc 850 is made from an extraction and purification of hyaluronic acid from fermentation of bacteria that make hyaluronic acid identical in chemical composition to human hyaluronic acid.

WILL MY INSURANCE COVER GENVISC 850?

Most insurance carriers and Medicare cover GenVisc 850. The process of obtaining reimbursement varies from plan to plan so talk with your doctor or your insurance provider before you begin treatment to find out if GenVisc 850 is covered.

Treatment

ARE FIVE INJECTIONS REQUIRED?

Initial investigations with GenVisc 850 have demonstrated that five injections one week apart provide optimal pain relief. Some patients have derived benefit following the third injection. The effectiveness of less than three injections has not been evaluated. You should discuss this with your doctor. Completion of the full injection course is recommended to achieve the greatest therapeutic benefit.

HOW DO I KNOW IF GENVISC 850 IS RIGHT FOR ME?

A doctor is the best person to advise you on any course of treatment.

GenVisc 850 is approved for the treatment of pain due to osteoarthritis of the knee in patients who do not get adequate relief from simple painkillers or from exercise and physical therapy.

Table 5. Posterior Probabilities for Main Analysis of GenVisc 850 Superiority

Objective	π	Probability
GenVisc Superiority	π_1	79

The results of the longitudinal analyses are presented in support of the observation that GenVisc 850 is superior to PBS across time. There is a good linear fit of the data to the model demonstrating increasing mean differences between GenVisc 850 and PBS through 30 weeks, Figure 1.

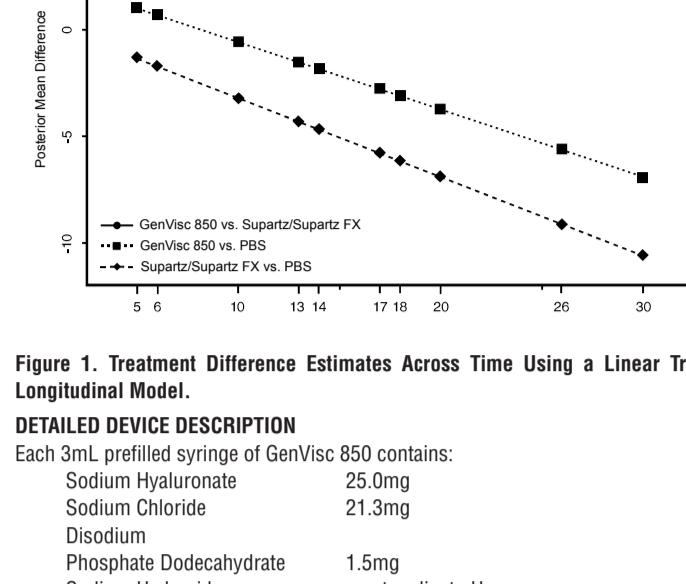


Figure 1. Treatment Difference Estimates Across Time Using a Linear Trend Longitudinal Model.

DETAILED DEVICE DESCRIPTION

Each 3mL prefilled syringe of GenVisc 850 contains:

Sodium Hyaluronate	25.0mg
Sodium Chloride	21.3mg
Disodium	
Phosphate Dodecahydrate	1.5mg
Sodium Hydroxide	q.s. to adjust pH
Hydrochloric acid	q.s. to adjust pH
Water for Injection	q.s. 2.5mL

HOW SUPPLIED

GenVisc 850 is supplied as a sterile, non-pyrogenic solution in 3mL pre-filled syringe.

DIRECTIONS FOR USE

GenVisc 850 is administered by intra-articular injection. A treatment cycle consists of five injections given at weekly intervals. Some patients may experience benefit with three injections given at weekly intervals. Injection of subcutaneous lidocaine or similar local anesthetic may be recommended prior to injection of GenVisc 850.

Warning: Do not concomitantly use disinfectants containing quaternary ammonium salts for skin preparation because sodium hyaluronate can precipitate in their presence.

Precaution: Do not use GenVisc 850 if the package is opened or damaged. Store in the original packaging (protected from light) below 86°F (30°C). DO NOT FREEZE. Do not use after expiration date indicated on package. The shelf life is 36 months.

Precaution: Strict aseptic administration technique must be followed.

Precaution: Remove joint effusion, if present, before injection GenVisc 850.

To ensure a tight seal and prevent leakage during administration, firmly HOLD the luer lock when removing the tip cap and attaching the needle. Take care not to rotate the luer lock which can lead to loosening of the hub. Inject GenVisc 850 into the knee joint through a 21-23 gauge needle.

Inject the full 2.5mL in one knee only. If treatment is bilateral, a separate syringe should be used for each knee.

Precaution: The prefilled syringe is intended for single use. The content of the syringe must be used immediately once the container has been opened. Discard any unused GenVisc 850.

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