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## Intra-articular use of a unique combination of a medical device composed of Glucosamine and Chondroitin sulfate with Hyaluronic acid

**Nuretin Heybeli**
Trakya University, Turkey

Knee osteoarthritis (KOA) is a major health problem. Injections have long been associated with the use of Hyaluronic acid under the general definition of "viscosupplementation". However, with the recent improvements in biotechnology, we can move further. Glucosamine and chondroitin sulfate, are promising therapeutic approaches, both showing efficiency with oral formulas. Glucosamine is the basic precursor of the structure of glycosaminoglycans and subsequently of aggrecan and other proteoglycans present in the cartilage. Chondroitin sulfate (CS) is a natural glycosaminoglycan found in the structure of the aggrecan molecule of the cartilage. It has many beneficial biological properties for cartilage including anti-inflammatory activity, wound healing, the ability to inhibit the enzymes responsible for cartilage degradation and a biological activity at the cellular level that helps restore arthritic joint functions. Among other properties, CS is responsible for the water retention of cartilage, due to the negative charge ensured by its structure. It is considered a possible candidate for the treatment of a joint defect. The safety of chondroitin sulfate sodium is supported by multiple well designed human clinical trials and animal studies. "Genvisc" is the medical device that combines these three essential molecules. In this study, We aimed to assess the feasibility and safety of repeated intra-articular knee injection of this unique combination to treat KOA as well as efficacy. The study protocol was approved in April 2016 by the Ethics Committee of Trakya University. After the approval of the local ethics committee, patients suffering from KOA with Kellgren-Lawrence grade II and III, aged between 35 to 80 years were included. Patients were prospectively evaluated at baseline and then at 2, 6 and 12 months of follow-up using the International Knee Documentation Committee (IKDC) subjective score (main outcome), Knee injury and Osteoarthritis Outcome Score, EuroQol visual analog scale and Tegner score. The range of motion, transpatellar circumference, patient satisfaction and adverse events were also recorded. A significant improvement was found in the study group with acceptable side effects.

### Biography

Nuretin Heybeli serves as a Professor at the Trakya University School of Medicine, Department of Orthopedics and Traumatology in Edirne, Turkey. Besides his career on orthopedic surgery since 1992, he has also completed his Masters' Degree on Biomedical Engineering at Boğaziçi University in 2010. His main areas of expertise include foot and ankle reconstruction, arthroscopy, sports injuries and adult reconstruction. His special interests include cartilage, ankle arthritis and total ankle arthroplasty, an area he personally pioneered in Turkey. He was named the "Physician of the Year" in 2014 by Istanbul Directorate of Health and has won the "Crystal Seagull" award in 2015, given by the Alumni Association of KALID for personal achievement. He was a traveling fellow for The European Federation of National Associations of Orthopaedics and Traumatology (EFORT) in 1997 and for European Foot and Ankle Society (EFAS) in 2004. Some of his awards are the following: Best Study at the First Turkish Shoulder and Elbow Surgery Congress, 2000; Second Place at the XVII.

nurettin.heybeli@gmail.com

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