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DENTISTRY
ORTHOPAEDICS
NEUROSURGERY
AESTHETIC MEDICINE

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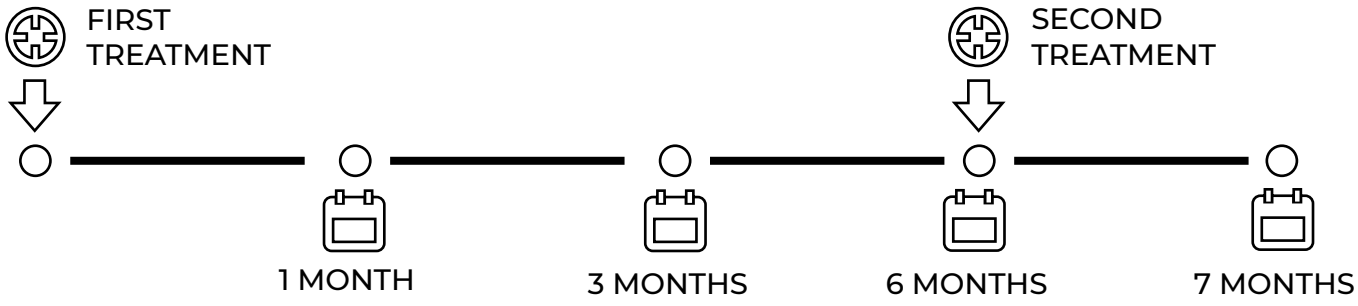
Hydrolyzed Collagen 5mg/2ml
Medical device based on low molecular weight collagen peptides (LWPs). It is a ready-to-use injectable solution for the structural strengthening of connective tissues. Produced by Tiss'You.

Hip and Knee Osteoarthritis
I-II-III Kellgren-Lawrence grade

20 patients
34-73 years



Background

Osteoarthritis is a degenerative disease that affects joints, resulting in pain and limited mobility. Treatments range from physical work and NSAIDs administration to major surgeries; in this gap there are several minimally-invasive approaches that mostly consist in intra-articular injections, either of molecules, i.e., hyaluronic acid, or autologous blood- or fat-derived cells.

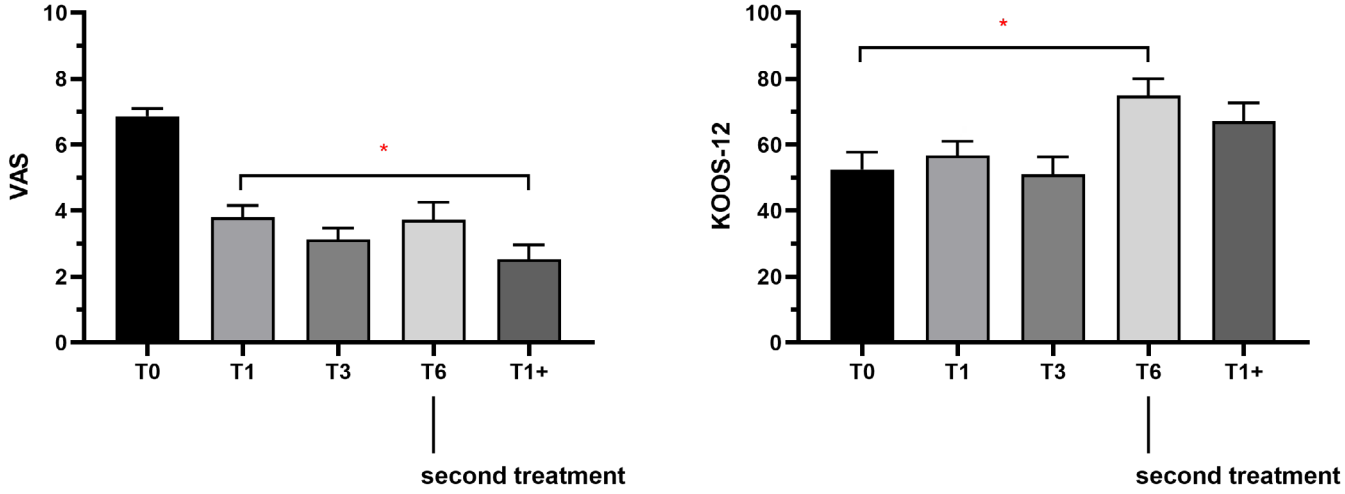
Indeed, the regenerative medicine protocols gained enormous consent in the past years, although results are dependent on the high individual variability of each patient, e.g., age, BMI, gender, smoke-habits, tissue characteristics.

Collagen peptides are a novel biological approach "from the bench" that can rely on high standardization. The low molecular weight peptides (LWPs) are obtained from the hydrolytic fragmentation of bovine collagen (Tiss'You, Republic of San Marino). LWPs can spread into the joint environment, acting as a direct reinforcement of the extracellular matrix of connective tissues deteriorated by degenerative, inflammatory, or traumatic events.

Methods

In this prospective study, 20 patients aged between 34 and 73 years were enrolled, consisting of 14 individuals with knee conditions and 6 with hip ailments. These patients presented with varying degrees of osteoarthritis, categorized as grades I, II, and III according to the Kellegren-Lawrence scale. The intervention involved the administration of intra-articular Low Molecular Weight Collagen Peptides (LWPs) at two time points: initially at time 0 and subsequently at the 6-month mark with a secondary injection. Patient assessments were conducted at multiple intervals, including baseline, 1 month, 3 months, 6 months, and 1 month after the secondary injection (7th month). To evaluate the efficacy of the treatment, the Visual Analog Scale (VAS) was utilized to assess pain, while functional improvement was gauged using the KOOS-12 for knees and HOOS-12 for hips.

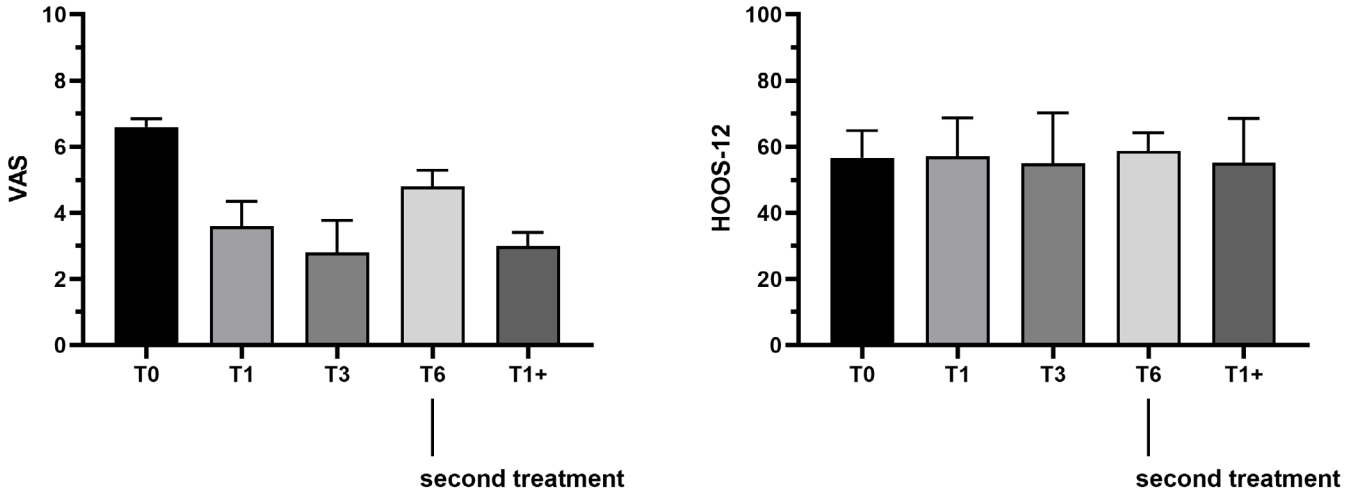
Knee group sub-analysis



Mean VAS pain score and KOOS-12 functional score (n=14) before and after LWPs 5 mg/ml treatment. Secondary injection of LWPs 5 mg/ml was performed at 6 months.

Errors bars show SEM; *p < 0.01

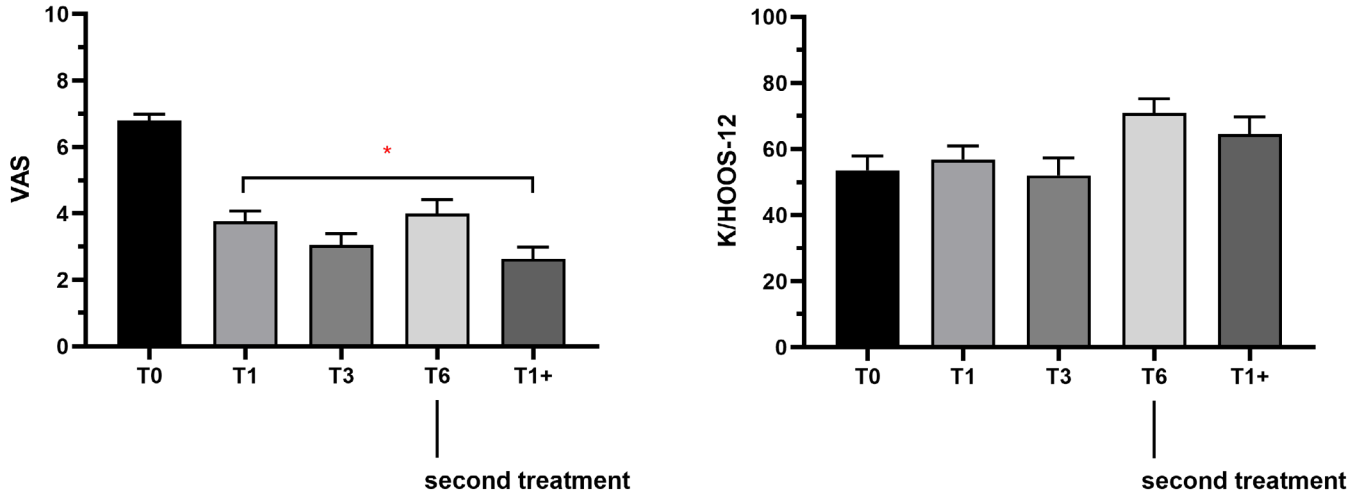
Hip group sub-analysis



Mean VAS pain score and HOOS-12 functional score (n=6) before and after LWPs 5 mg/ml treatment. Secondary injection of LWPs 5 mg/ml was performed at 6 months.

Errors bars show SEM; *p < 0.01

Results summary



Mean VAS pain score and KOOS-12 functional score (n=20) before and after LWPs 5 mg/ml treatment. Secondary injection of LWPs 5 mg/ml was performed at 6 months.

Errors bars show SEM; *p < 0.01

Discussion

We observed solid pain relief 1 month after the first LWPs injection which was maintaned during all the follow-ups. Pain relief was even greater after 1 month following the secondary LWPs injection, showing a statistically significant difference compared with the first treatment. Results on pain were consistent in both knee and hip groups. Patients remarkably improved their articular functionally according to the KOOS-12 assessment with a peak at 6 months, showing a delayed outcome in comparison with pain relief. This result was not observed in the hip sub-population, probably due to the putative mechanical origin of hip OA, or due to OA severity since 4 out of 6 hips had a grade III OA on the Kellgren-Lawrence scale. However, even these patients achieved pain relief.

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