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EFFECTIVENESS OF HYALURONIC ACID INJECTION IN TREATMENT OF EPICONDYLITIS AND PATELLAR TENDINOPATHY

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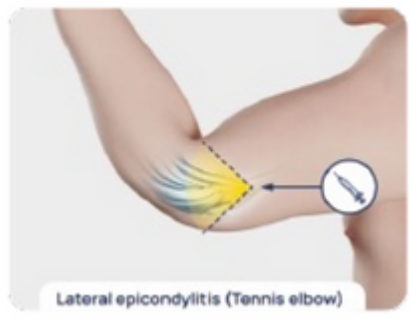
Introduction

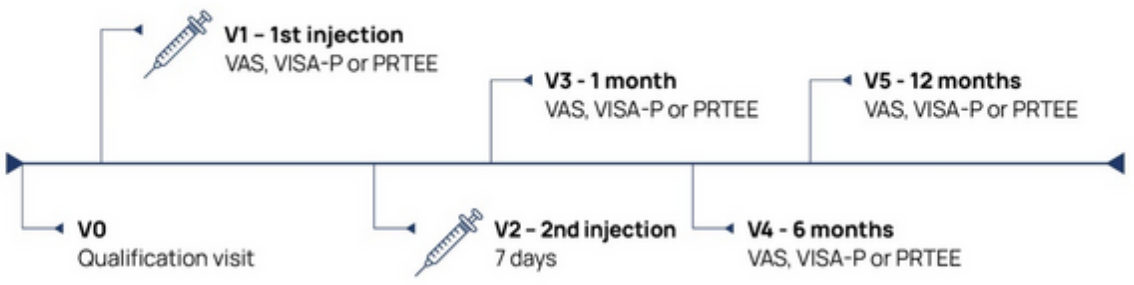
Tendinopathy is an umbrella term used to describe painful conditions affecting tendon structure, often associated with structural changes that result in a reduction in tendon strength[1,2]. Patellar tendinopathy (PT)[3] and lateral epicondylitis (LE)[4] are particularly prevalent among athletes and individuals engaged in repetitive activities that locate excessive strain and mechanical stress on the selected tendons, resulting in their overuse. Current literature and clinical data demonstrate that effective treatment can be based on HA. By injecting HA around the tendon or into the tendon sheath, its unique viscoelastic, anti-inflammatory, and lubricating properties work synergistically to improve tendon function, reduce pain, and support tissue healing. HA also plays a key role in modulating the local inflammatory response and inhibiting the activity of degradative enzymes, all of which contribute to the restoration of tendon structure and function[5–7]. HA is available in a wide variety of formulations, each differing in key characteristics such as molecular weight, concentration, viscosity, and origin. These variations significantly influence the properties of HA.

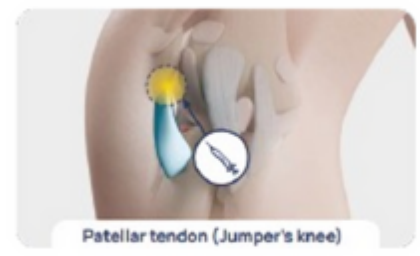


Aim of the study

The objective of this study was to evaluate the long-term clinical effectiveness of a therapy involving two peritendinous injections of 1.6% hyaluronic acid (HA) with a molecular weight of 1400–1600 kDa. The injections, administered at one-week intervals, were used to treat patients with two types of chronic tendinopathies: patellar tendinopathy (PT) and lateral epicondylitis (LE).

Study schedule





Methods

60 patients with clinically diagnosed chronic symptomatic tendinopathies (30 subjects in a PT group and 30 in an LE group) were enrolled in this prospective, interventional study. Participants received two peritendinous injections of Biolevox™ HA TENDON (sodium hyaluronate 32 mg, molecular weight 1400-1600 kDa, concentration 1.6%, 2 mL, Biovico Sp. z o. o., Poland) with a 7-day interval. At each treatment day, a 2 mL dose of HA was injected around the affected tendon site using a fanning technique. Follow-up visits were conducted 1 month, 6 months, and 12 months after therapy. The results of the study were analyzed using one-way ANOVA followed with Tukey's multiple comparisons test (for PRTEE and for VISA-P scores) and a Kruskal-Wallis test with Dunn's multiple comparisons test (for VAS in LE group and for VAS in PT group).

Results

56 patients (93%) completed the study.

PATELLAR TENDINOPATHY

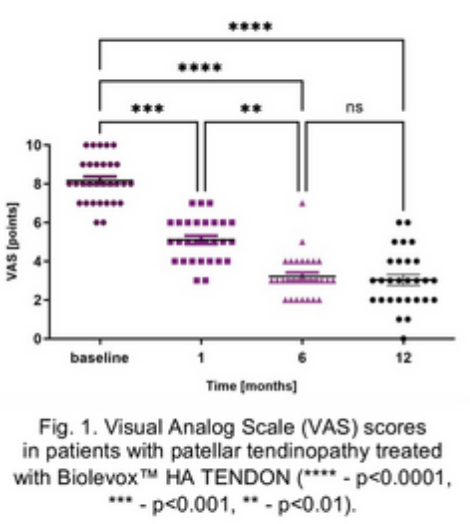


Fig. 1. Visual Analog Scale (VAS) scores in patients with patellar tendinopathy treated with Biolevox™ HA TENDON (**** - p<0.0001, *** - p<0.001, ** - p<0.01).

Significant pain reduction was observed during follow-up visits:

- **1 month** (p<0.001),
- **6 months** (p<0.0001),
- **12 months** (p<0.0001) after treatment when compared to the baseline measurements (Fig. 1.).

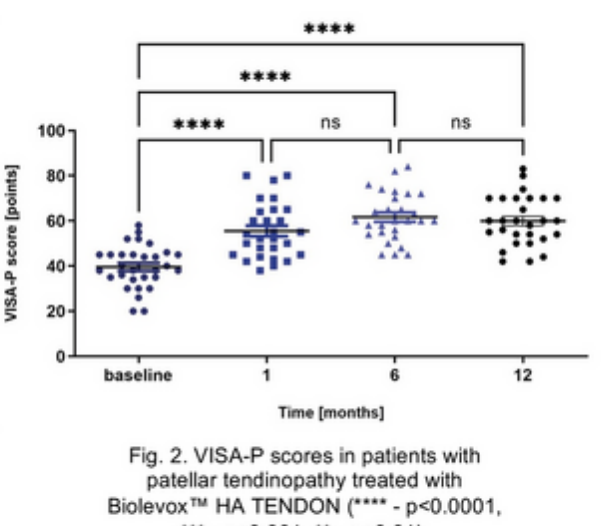


Fig. 2. VISA-P scores in patients with patellar tendinopathy treated with Biolevox™ HA TENDON (**** - p<0.0001, *** - p<0.001, ** - p<0.01).

Significant functional improvement in patients was observed at follow-up visits:

- **1 month** (p<0.0001),
- **6 months** (p<0.0001),
- **12 months** (p<0.001) after the therapy compared to the baseline. (Fig. 2.).

LATERAL EPICONDYLITIS

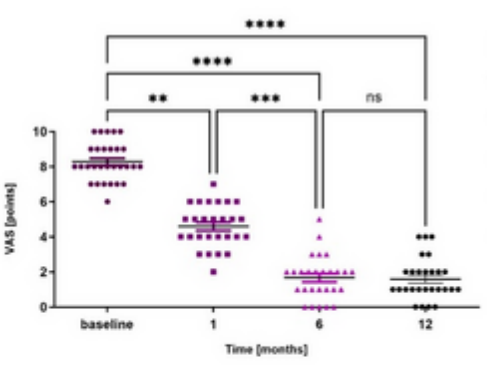


Fig. 3. Visual Analog Scale (VAS) scores in patients with lateral epicondylitis treated with Biolevox™ HA TENDON (**** - p<0.0001, *** - p<0.001, ** - p<0.01).

Significant pain reduction was observed at follow-up visits:

- **1 month** (p<0.01),
- **6 months** (p<0.0001),
- **12 months** (p<0.0001) after the therapy compared to the baseline (Fig. 3.).

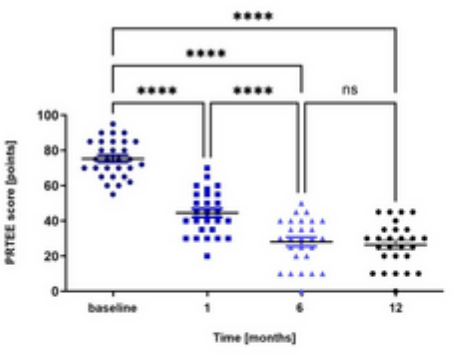


Fig. 4. PRTEE scores in patients with lateral epicondylitis treated with Biolevox™ HA TENDON (**** - p < 0.0001).

Significant functional improvement in patients was observed at follow-up visits:

- **1 month** (p<0.0001),
- **6 months** (p<0.0001),
- **12 months** (p<0.001) after
- the therapy compared to the baseline (Fig. 4.).

Safety assessment

The safety assessment results indicated that, aside from localized pain at the injection site, no adverse events related to the therapy were observed throughout the study. No complications—such as infections or pain flares following the injection were reported in any of the patients.

Conclusions

The results from this prospective study demonstrated that therapy based on two peritendinous injections of HA, characterized by selected parameters such as a specific MW of 1400-1600 kDa and a concentration of 1.6%, constitutes a clinically effective treatment for individuals diagnosed with tendinopathies.

Carefully selected properties of HA allow to deliver sustained benefits

Effective
pain reduction function improvement

Long-lasting
up to 12 months of relief

Safe
Only injection-site pain was reported as adverse event related to the therapy