AB0790

EVALUATING THE EFFECTIVENESS OF INTRA-ARTICULAR KNEE INJECTION USING ALLOGENIC PLATELET DERIVED LYOPHILIZED GROWTH FACTORS IN EGYPTIAN PATIENTS WITH SYMPTOMATIC PRIMARY KNEE OSTEOARTHRITIS

¹Rasmia Elgohary^{*}, Amany Diab¹, Hala Elgndy¹, Hossam Fahmy², Kamel Gado¹.
¹Kasr Alainy School of Medicine, Cairo University, Egypt, Internal Medicine, cairo, Egypt; ²Faculty of Medicine, Ain Shams University, Clinical Pathology, cairo, Egypt

Background: Using intra-articular injections of autologous platelet-rich plasma (PRP) has shown promising results in treatment of knee osteoarthritis (KOA). Its regenerative properties depends on the amount of growth factors (GF) released after platelets activation. Using large-volume of blood for obtaining allogenic PRP can provide higher concentrations of platelet and GF. However once prepared, PRP is stable for only 8-hours. Freeze drying (lyophilization) can be used to stabilize the biological materials for prolonged storage without causing their damage (1).

Objectives: Investigating the effectiveness of intra-articular allogenic lyophilized growth factors (L-GF) injection in patients with symptomatic KOA using clinical and knee ultrasonography assessment.

Methods: 30-patients with symptomatic primary KOA, diagnosed according to revised criteria of the ACR (2), were enrolled. Local ethical approval was obtained. All patients had given a written informed consent. The study group was equally randomized into intervention and control groups. Both was subjected to baseline functional assessment using WOMAC score; evaluating pain, stiffness, and physical function (3), and ultrasonography (US) assessment of knee effusion. The patients in control group were kept on their medications without intervention. The intervention group was received two doses of L-GF; at baseline and after 2-months. L-GF was prepared from platelets derived from individual whole blood donations. Each unit of platelets was tested in and found to be non-reactive for HBsAg, HIV I & II antibodies, HIV p-24 antigen, HCV antibodies and antibodies to Treponema Palidum, by licensed assay methods. Sero-negative plasma were further examined by Nuclear Acid Testing. Further viral inactivation by UV-radiation and Riboflavin by the Mirasol system was done. The platelets in the buffy coat layer were activated using CaCl₂ to release their GF. Excess water, cellular elements and fibrinogen were removed and the remaining GF were "ultraconcentrated." Lyophilization of the obtained GF was then processed. The L-GF was supplied as powder in tightly sealed container and was stored at 2° to 8° C. Prior to use, reconstitution of the product was done using 1-ml saline and 1-ml lignocaine then the mixture was kept at ambient temperature for 5-min. to ensure complete protein re-hydration. After 6-months the WOMAC score and knee US were repeated for all participants. Then percent of improvement of WOMAC and US detected effusion were calculated for all patients.

Results: The patients in the intervention group was significantly older (56 ± 9 years) and had higher BMI (38 ± 5.3 kg/m²) in comparison to control (44 ± 11 years, 33 ± 5.6 kg/m²). Both groups showed statistically insignificant difference regarding the baseline total WOMAC score and radiographic assessment. Post injection pain was reported by all patients in intervention group, it lasted only for 2.4 ± 0.83 hours and was graded as mild. The mean of total WOMAC score and its 3-components in addition to knee effusion were decreased significantly in the intervention group after 2 months and 6 months of follow-up (figure-A). After 6-months, the intervention group showed statistically significant percentage of improvement regarding WOMAC scores and effusion in comparison to the control (figure-B).

Conclusion: Allogenic L-GF was well tolerated and showed encouraging results in patients with symptomatic KOA, regarding improvement of pain, stiffness and function in addition to decreasing knee effusion.

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AB0791

ONE VERSUS TWO INJECTIONS OF INTRA-ARTICULAR HIGHLY CROSS-LINKED HYALURONAN YEARLY IN PATIENTS WITH KNEE OSTEOARTHRITIS: INSIGHTS FROM ROUTINE CLINICAL PRACTICE

Tsvetoslav Georgiev, Rumen Stoilov. University Hospital "St. Ivan Rilski" – Sofia, Clinic of Rheumatology, Sofia, Bulgaria

Background: Hyaluronic acid (HA) is a natural polysaccharide, which is an important structural component of synovial fluid and cartilage. There are different injectable forms of HA used for clinical application. Highly cross-linked/high-molecular-weight hyaluronans (HMWHA) provide additional stability and improve functionality [1], resulting in longer bioavailability in the knee joint and promoting viscosupplementation [2]. A direct comparison between the two most common injection protocols of HMWHA in our routine practice is of great practical interest, since viscosupplementation is among the most commonly used treatment modalities for patients with knee osteoarthritis (KOA) in Bulgaria [3].

Objectives: Our aim was to compare the clinical effectiveness of two different regimens for injecting intra-articular HMWHA in KOA patients under 'real-world' conditions in routine clinical practice.

Methods: This prospective, open-label, observational study included 50 patients with KOA who were followed for a period of 1 year. They were divided into two therapeutic arms according to their preselected treatment regimen: patients injected once with HMWHA (n = 25; group 1) at baseline and patients injected twice 6 months apart with HMWHA (n = 25; group 2). A 100-mm visual analogue scale (VAS) for pain, disease-specific (Western Ontario & McMaster Universities Osteoarthritis Index [WOMAC]) and generic (health assessment questionnaire – disability index [HAQ-DI]) questionnaires were used to evaluate patients at baseline, three months, six months, and one year later. Standardized radiographs were obtained at baseline and after one year. The response to the treatment was determined using the OMERACT-OARSI set of responder criteria [4].

Results: A single injection of HMWHA resulted in a statistically significant improvement in pain even at 12 months (Δ VAS = 10.12 ± 14.5 mm, $p < 0.05$), although the effect progressively decreased after the third month when Δ VAS was 18 ± 14.31 mm, $p < 0.05$ (Figure 1). If the two regimens of HA injections were directly compared, the mean difference of pain improvement for the year of follow-up was about 9 mm in favor of group 2, but this result was not "statistically" significant (10.12 vs 19.16 mm, $p > 0.05$). Physical function was statistically improved in both

groups ($p < 0.05$) without any statistically significant difference. Responders in the first group in the end of the year were 40% (10/25) and 60% (15/25) in group 1 and group 2, respectively ($p > 0.05$). In the end of the follow-up period HAQ-DI did only statistically improve among patients in group 2.

Fig.1. Mean change in 100-mm VAS values for pain over time in both groups

Conclusion: If maximal symptomatic relief is our primary goal, it would be logical to choose a two-injection regimen. However, if we take into account the financial aspect, we may be satisfied with a single injection of highly cross-linked HA over a year.

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AB0792 CURCUMIN IN OSTEOARTHRITIS TREATMENT: THE PRESENT STATE OF EVIDENCE

¹Maria Goulart¹, Daniela Partar², Luis Cunha³, Stevin Zung³. ¹Ache Laboratories, Medical, São Paulo, Brazil; ²Ache Laboratories, São Paulo, Brazil; ³Ache Laboratories, medical, São Paulo, Brazil

Background: Osteoarthritis (OA) is a degenerative disease of the joint occurring in elderly population. According to World Health Organization, its worldwide prevalence ranges from 11.8% to 12.7%. Since it is known that OA has an inflammatory cause, with IL-1 β and TNF- α being the key cytokines that drive the production of inflammatory mediators and matrix-degrading enzymes, the compounds with anti-inflammatory properties are targeted as therapeutic options for osteoarthritis treatment. Curcumin is a plant-derived compound extracted from the rhizomes of turmeric (*Curcuma longa*). It has been demonstrated as an effective anti-inflammatory and antioxidative agent. In vitro studies have shown that curcumin can block the activation of NF- κ B system in the chondrocytes. Therefore, it prevents the apoptosis of chondrocytes, suppress the release of proteoglycans and metal metalloproteinases and expression of cyclooxygenase, prostaglandin E-2, and inflammatory cytokines in chondrocytes. Besides its influence on inflammatory markers, clinical trials also demonstrated curcumin's effects in pain and function in patients with osteoarthritis.

Objectives: The purpose of this paper is to critically review evidences regarding the role of curcumin in osteoarthritis treatment.

Methods: PubMed/MEDLINE, Lilacs, and SCIELO databases were searched using the terms "curcumin" AND "osteoarthritis" without imposing

time limitations. The search was limited to humans and to the English and Portuguese languages. Studies that met the following inclusion criteria were included in the review: 1) clinical trials that evaluated the effects of curcumin on osteoarthritis. The selection phase involved a review of abstracts and an examination of the full text based on the eligibility criteria and the last search was conducted on January 2019.

Results: Overall, 9 clinical trials involving a total of 797 patients met the inclusion criteria. The studies have a degree of heterogeneity concerning the dosage, treatment duration, objectives and endpoints, but the main objectives were to evaluate the efficacy and safety of curcumin in osteoarthritis treatment. All studies have shown a beneficial effect of curcumin supplementation in the treatment of osteoarthritis, mainly in reduction of pain, stiffness, improvement of physical function, decrease the use of NSAIDs and other painkillers. Results also showed a decrease on inflammatory markers

Conclusion: The studies demonstrated that curcumin is clinically effective as a long term adjuvant treatment of osteoarthritis further to an excellent tolerability. However, large and well-designed randomized controlled trials are warranted to confirm the use of curcumin in osteoarthritis treatment.

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AB0793 LONG-TERM USE OF AMTOLMETIN GUACIL IN PATIENTS WITH OSTEOARTHRITIS, RHEUMATOID ARTHRITIS AND ANKYLOSING SPONDYLITIS

Andrey Karateev, Evgeny Nasonov, V. A. Nasonova Research Institute of Rheumatology, Moscow, Russian Federation

Background: Long-term use of nonsteroidal anti-inflammatory drugs (NSAIDs) is used to control of chronic pain in osteoarthritis (OA), rheumatoid arthritis (RA) and to prevent the progression of ankylosing spondyloarthritis (AS). Amtolmetin guacil (AMG), which has a low risk of gastrointestinal complications, may have advantages for long-term use.

Objectives: To evaluate the effect and safety of long-term use of AMG.

Methods: AMG 600-1800 mg/day was prescribed to 442 patients with OA (60.6 + 10.2 years, women 88.7%), 126 with RA (55.0 + 14.0 years, women 84.2%) and 73 with the AS (47.0 + 12.0 years, women 30.0%). The primary end point was the dynamics of pain on a numerical rating scale (NRS), additional for OA - WOMAC pain and HAQ, for RA - DAS28-CRP, for AS - BASDAI, BASFI and ASDAS-CRP. The result of treatment was evaluated on 3 consecutive visits after 3 months (9 months of treatment).

Results: After 9 months 65.2% of OA patients, 75.3% of RA patients, and 82.2% of AS patients continued to take AMG. In end of study, the median of pain decreased with OA from 5.6 [4.1–6.9] to 3.4 [1.7–5.1], with RA from 5.8 [4.0–7.5] to 3.4 [2.0–4.8], with AS from 5.8 [4.2–7.5] to 3.1 [1.5–5.0] NRS ($p < 0.001$). In OA WOMAC pain decreased from 127 [24–159] to 13.7 [14–40], $p < 0.001$, HAQ from 0.54 $\pm$ 0.44 to 0.34 $\pm$ 0.26, $p < 0.001$. With RA, the average value of DAS28 decreased from 4.81 + 1.18 to 4.30 + 1.24, $p < 0.05$. In AS, the median BASDAI index decreased from 4.5 [1.0–8.0] to 3.0 [0–8.0], $p < 0.001$. The number of AS patients with high activity on the ASDAS-CRP index (> 3.5) decreased from 76.9% to 25.8%, $p < 0.001$. The BASFI index has not changed. 77.9% of patients with OA, 77.0% of patients with RA, and 74.5% of patients with AS were satisfied with the results of AMG treatment.