AB0973

THE EFFICACY OF ELECTROMYOGRAPHIC BIOFEEDBACK ON PAIN, FUNCTION AND MAXIMAL THICKNESS OF VASTUS MEDIALIS OBLIQUE MUSCLE IN PATIENTS WITH KNEE OA; A RANDOMISED CLINICAL TRIAL

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Background: Isometric exercises play important role in treatment of Knee OA and are easy to do by the growing elderly population. Electromyographic (EMG) biofeedback devices are designed to enhance patient's participation in these exercises by giving them feedback signals of visual or auditory nature, so that it can affect the subject's voluntary activity.

Objectives: The aim of this survey was to study the effect of EMG biofeedback on pain, function, thickness of the vastus medialis oblique muscle and maximal electrical activity of this muscle in isometric contraction, in patients with knee OA.

Methods: In this single-blinded clinical trial, 46 patients aged between 45 to 70, referring to Shohadaye Tajrish and Shahid Modarres hospitals with diagnosis of knee OA, were recruited. Patients were randomly assigned to two groups of case (23 patients), with EMG biofeedback associated exercise, and control (23 patients), with sham biofeedback associated exercise. The exercise program includes 12 sessions of 15 min isometric quadriceps exercise. Data were gathered via VAS score, the Persian version of WOMAC and Lequesne questionnaires, ultrasonography of VMO muscle and surface electromyography of this muscle at baseline and at the end of 2 months period of this study. Variables compared before and after exercises program in each group and between the two groups.

Results: At the end of the study, there were no significant differences between the two groups regarding VAS score, VMO muscle electrical activity, maximal VMO muscle thickness, WOMAC and Lequesne questionnaires scores including overall scores and scores in each subcategories. Although all assessed parameters, except for VMO muscle thickness, were found to be improved significantly in each group, the changes were not more significant in case group except for the VAS score. VMO muscle thickness didn't change significantly after 12 sessions of exercise in either of the groups.

Conclusions: Isometric exercises accompanied by EMGBF and the same exercises with sham biofeedback for 2 months both lead to significant improvements in pain, and function of patients with knee OA. Real EMG biofeedback was not superior to sham biofeedback. The only parameter found to be improved to a greater extent in the EMGBF group was the subjective measure of VAS score.

Disclosure of Interest: None declared

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THE EFFICACY AND SAFETY OF INTRA-ARTICULAR BOTULINUM TOXIN INJECTION IN KNEE OSTEOARTHRITIS

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Background: Osteoarthritis (OA) is a common disease that has a great burden through pain and decreased functional capacity. Botulinum toxin-A (BTA) injection has been recently proposed for knee OA patients to reduce pain and disability.

Objectives: In this study we evaluate BTA injection efficacy and safety among non-advance knee OA participants in a before-after trial.

Methods: This trial was conducted on knee OA patients presented to our PM and R clinic. Thirty participants aged 40–75 years who had radiographic OA grades of II and III KLS were included. Single intra articular injection of half of a 500^U vial BTA was applied for all participants. Patients were prospectively evaluated at baseline and then at 8 and 24 weeks after injection using the visual analogue scale (VAS) for pain and Western Ontario and McMaster Universities Osteoarthritis Index (WOMAC) in three subscales: pain, stiffness and function.

Results: Both main outcome measures of this trial (VAS and WOMAC) significantly improved after 24 weeks follow up. About two third of final VAS improvement was achieved in the first week after injection (from 7.2 to 4.5, MD%=36%, p value=0.008); then at 8 and 24 weeks post injection VAS reached 3.8 and 3.3, respectively. Almost 81%–77% of patients had more than 30% decline in their baseline VAS at 8th and 24th week visits, respectively. Also a similar pattern was observed for WOMAC index of sixth month (from 56.7 to 31.0, Mean Difference=–25.7 [MD%=45%], p value=0.005), with more remarkable changes in function subscale (MD%=46%). In this study no major adverse events were noted.

Measure	Before	After	Mean Diff (SD)	P value
WOMAC	10.62 (3.31)	6.00 (1.78)	4.62 (2.35)	0.000
<i>Pain</i>				
WOMAC	5.08 (1.41)	2.85 (1.19)	2.23 (0.90)	0.000
<i>Stiffness</i>				
WOMAC	41.08 (9.52)	22.15 (4.83)	18.92 (7.88)	0.000
<i>Function</i>				
WOMAC	56.77 (13.03)	31.00 (6.96)	25.7 (10.22)	0.000
<i>Total</i>				

Abstract AB0974 – Figure 1

Conclusions: BTA showed promising effects in improving knee pain, ROM and functional status. Therefore this single session method could be considered as an alternative to other intra articular injections in knee OA patients who did not response to preliminary conservative treatments. Further data is necessary to assess long-term effects and cost-benefit analysis of BTA against other similar choices.

Disclosure of Interest: None declared

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DOES PLATELET RICH PLASMA CHANGE THE VOLUMETRIC FINDINGS OF MRI IMAGING? (A RANDOMISED CLINICAL TRIAL)

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Background: Several studies have shown the effect of platelet rich plasma (PRP) on knee osteoarthritis. Most of these studies have focused on subjective and clinical symptoms effect of PRP and fewer papers have studied its objective effect on cartilage. MRI is the gold standard imaging for cartilage lesion.

Objectives: In this study, we investigated the effect of PRP on cartilage characteristics by special MRI sequencing.

Methods: In the double blind randomised clinical trial, patients with grade 1, 2 and 3 of osteoarthritis were included in this study. All of the knees divided to groups randomly and exercise was prescribed for all of knees. Beside, PRP was injected 2 courses with 4 weeks interval in PRP group. For all of patients before and 6 months after treatment VAS (visual analogue scale) and WOMAC (Western Ontario and McMaster Universities Arthritis Index) were fulfilled and MRI was performed. Sequencings of MRI were PD fat saturated (coronal and sagittal) and transverse TRUFISP 3D. Imaging was scored according to 4 cartilage's characteristics including, Patellofemoral cartilage volume, Subarticular bone marrow abnormality, Medial and lateral meniscal disintegrity and Synovitis.

Results: 23 knees in case group and 23 knees in control group were studied. All of patients were female with mean age 57.57±5.9 years old and mean BMI 28.49 ±3.24 (Kg/m²). 52% of knees had grade 2 of osteoarthritis. Mean total WOMAC and VAS changes before and after treatment in control group were 11.61±1.3 and 8.5±1.1 respectively. In PRP group, mean total of WOMAC and VAS changes showed better improvement with 20±3.2 and 12.3±1.6 respectively (P-Value<0.05). In PRP group all of the radiologic variables except subarticular bone marrow abnormality had significantly improvement (P-Value<0.05). In comparison between 2 groups, Patellofemoral cartilage volume and synovitis had significantly changes in PRP group (P-Value<0.05).

Conclusions: In this study, in addition to the effect of PRP on VAS and WOMAC, there is effect on radiologic characteristics (Patellofemoral cartilage volume and synovitis) significantly. For more evaluation, Study with more sample size is recommended.

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