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AB0976

EFFICACY OF INTRA-ARTICULAR INJECTION OF PRP-DRIVEN GROWTH FACTOR (PRP WITHOUT PLATELET AND WBC) VERSUS HYALURONIC ACID ON PAIN AND FUNCTION OF PATIENTS WITH KNEE OSTEOARTHRITIS: A SINGLE-BLINDED RANDOMISED CLINICAL TRIAL

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Background: Knee osteoarthritis is the most common joint disease.

Objectives: We aimed to compare the efficacy and safety of intra-articular injection of PRP-driven growth factor versus hyaluronic acid (HA) on pain and function of patients with knee osteoarthritis.

Methods: In this single-blinded randomised clinical trial, patients with symptomatic osteoarthritis of knee were assigned to receive 2 intra-articular injections of PRP-driven growth factor in 3 weeks or 3 weekly injections of HA. Our primary outcome was the mean change from baseline until 2 and 6 months post intervention in scores of visual analogue scale, Western Ontario and McMaster Universities Osteoarthritis Index (WOMAC), and Lequesne index.

Results: A total of 69 patients entered final analysis. The mean age of patients was 58.2 ± 7.41 years and 81.2% were women. Total WOMAC index decreased from 42.9 ± 13.51 to 26.8 ± 13.45 and 24.4 ± 16.54 at 2 and 6 months in the PRGF group (within subjects $p = 0.001$), and from 38.8 ± 12.62 to 27.8 ± 11.01 and 27.4 ± 11.38 at 2 and 6 months in the HA group (within subjects $p = 0.001$), respectively (between subjects $p = 0.631$). There was no significant difference between PRP-driven growth factor and HA groups in patients' satisfaction and minor complications of injection, whereas patients in HA group reported significantly lower injection-induced pain.

Abstract AB0976 – Table 1

WOMAC scores		VAS			
		Pain	Function	Stiffness	Total
PRGF	Baseline	9.2±2.97	30.6 ±10.09	3.0±2.01	42.9 ±13.51
	At 2 month	5.8±2.96	19.5±9.79	1.6±1.66	26.8 ±13.45
	At 6 month	5.3±3.60	17.6 ±11.70	1.5±1.84	24.4 ±16.54
	<i>P value within groups</i>	0.0001	0.0001	0.0001	0.0001
Hyalgan	Baseline	8.7±3.01	27.8 ±9.62	2.3±1.64	38.8 ±12.62

7.4±1.48
At 2 month
5.9±2.65
20.6±8.04
1.2±1.39
27.8±11.01
4.8±1.80
At 6 month
5.9±2.79
20.1±7.77
1.3±1.48
27.4±11.38
4.8±2.39
P value within groups
0.0001

0.0001
0.0001
0.0001
0.0001
P value Between Groups
0.847
0.894
0.189
0.985
0.648

Abstract AB0976 – Figure 1

Conclusions: In 6 months follow up, PRP-driven growth factor and HA, both are effective options to decrease pain and improvement of function in patients with mild to moderate knee osteoarthritis.

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AB0977

CORRELATION OF THE LEVEL OF C-REACTIVE PROTEIN AND BONE MINERAL DENSITY IN PATIENTS WITH GONARTHROSIS

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Background: The results of recent studies also indicate a link between loss of bone mineral density (BMD) and progressive loss of articular cartilage in patients with knee joint osteoarthritis (OA). The presence of correlation of changes in bone tissue and degradation of cartilage in OA is due to the possible presence of common pathogenesis chains, including activation of proinflammatory mediators.

Objectives: Determine the relationship between the level of C-reactive protein (CRP) and the level of BMD in patients with gonarthrosis.

Methods: We conducted a cross sectional study including confirmed radiographic knee osteoarthritis according to Kellgren-Lawrence scale, with normal and reduced BMD according to the classification of Report of a WHO Study Group. The structural and functional status of bone tissue in patients was

evaluated using the method of ultrasonic densitometry and DEXA at the beginning of treatment and 12 months. The CRP level was determined at the beginning of the observation and after 1, 3, 6, 9 and 12 months. The two groups were compared on the level of BMD, radiological grade, the level of CRP and WOMAC function after adjusting for significant covariates. Multiple regression analysis was used to identify the independent effects to each specific component for level of CRP on knee osteoarthritis parameters.

Results: One hundred forty women were included. The mean age was 55.28 $\pm$ 0.80³⁷⁻⁷⁵ years. Overweight had 86.42% of patients. The body mass index averaged 30.18 $\pm$ 0.43²³⁻³⁷ kg/m². According to Kellgren-Lawrence classification, 55% of patients had II and 45% of patients – III radiological stage of gonarthrosis. 55.7% of knee OA patients had reduced bone mineral density. Multiple regression analysis showed, after adjusting for significant covariates, that the CRP level was significantly higher ($p < 0.0001$) in patients with reduced BMD compared to normal (6.32 $\pm$ 1.67 mg/L and 4.74 $\pm$ 0.75 mg/L respectively), an average of 33, 3%.

Conclusions: It was found that in patients with gonarthrosis with reduced BMD, a higher level of CRP was observed at 33.3%, which was associated with a more severe course of the disease.

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AB0978

DECREASED PAIN AND IMPROVED DYNAMIC KNEE INSTABILITY MEDIATE THE BENEFICIAL EFFECT OF WEARING A SOFT KNEE BRACE ON ACTIVITY LIMITATIONS IN PERSONS WITH KNEE OSTEOARTHRITIS

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Background: We have previously shown that wearing a soft knee brace reduced activity limitations in persons with knee osteoarthritis (OA).¹ Several underlying mechanisms have been proposed via which a soft knee brace reduces activity limitations in persons with knee OA.² However, to our knowledge, no study has identified mechanisms explaining this effect.

Objectives: The aim of the study was to identify mechanisms explaining the beneficial effect of wearing a soft knee brace on activity limitations in persons with knee OA.

Methods: This was an exploratory analysis of data from 44 participants with knee OA from Amsterdam Osteoarthritis cohort, who enrolled in a single-session within-subject cross-over design study, comparing a soft brace with no soft brace, and comparing a non-tight soft brace with a tight soft brace (GENUTEX A2, Human I). A mediation analysis was performed and the mediation effect was calculated based on the product of coefficients approach. Confidence intervals were calculated with a bootstrap procedure. The outcome measures were activity limitations assessed with the 10-metre walk test and the Get up and Go test. The studied mediators were the changes in: knee joint proprioception, pain, pressure pain threshold (PPT) and objective dynamic knee instability. Knee joint proprioception was assessed by the active movement extent discrimination assessment; pain with the Numeric Rating Scale (NRS); PPT with a hand-held pressure algometer, and dynamic knee instability with the Perturbation Response i.e. a measure reflecting deviation in the mean knee varus-valgus angle after a controlled mechanical perturbation on the treadmill, in respect to level walking.

Results: Both a decrease in pain during walking and a decrease in dynamic knee instability mediated the association between wearing a soft knee brace and reduction in time to complete both 10 m walk test and the GUG test ($p < 0.05$). Changes in proprioception and PPT did not mediate these associations ($p > 0.05$). Magnitudes of the mediation effects were similar for a non-tight and a tight soft knee brace.

Conclusions: The decrease in activity limitations in persons with knee OA who wear a soft knee brace might be explained by a decrease in self-reported pain and a reduction in dynamic knee instability.

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AB0979

ULTRASOUND-MEASURED RADIAL DISPLACEMENT OF THE MEDIAL MENISCUS AS AN INDIRECT SIGN OF MRI-DETECTED CARTILAGE DAMAGE IN PATIENTS WITH MEDIAL TIBIOFEMORAL OSTEOARTHRITIS

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Background: Extrusion of the medial meniscus is a consequence of the complex interactions among joint structures and altered tissue mechanics involved in the osteoarthritis (OA) process.¹ Potential contributing factors are cartilage loss, meniscal tears, obesity and knee malalignment²⁻⁴ – features strongly associated with knee OA. Ultrasound (US) measurement of medial meniscus radial displacement (MRD) is an easy to implement procedure that may serve as a starting point for assessment of the cartilage loss in patients with knee osteoarthritis.

Objectives: The aim of the study was to investigate the correlation between ultrasound-measured MRD and magnetic resonance imaging (MRI)-detected cartilage damage, as a referent method, in patients with medial femorotibial knee OA

Methods: 60 osteoarthritic knees of 48 patients (83% female) aged 40 to 80 years, meeting the ACR criteria for knee osteoarthritis, were included in the study. Patients with severe malalignment (varus or valgus deformity ≥ 20 degrees) were excluded. Radiographic stage was assessed according to the Kellgren-Lawrence (KL) grading system, as only KL I-III knees were included. MRD was measured in millimetres using diagnostic US with patients in the supine (non-weight-bearing) position. Magnetic resonance images were acquired by using 1.5 T MRI and were evaluated by a trained radiologist using Whole-Organ Magnetic Resonance Imaging Score (WORMS) for cartilage abnormalities of the medial femorotibial joint (MFTJ) and medial meniscal tears.

Results: There was a significant difference in values of MRD among studied radiographic groups ($p < 0.001$). The mean (SD) levels of MRD were 2.70 (1.43) mm, 3.97 (1.25) mm and 6.03 (1.30) mm for KLI, KLII, and KLIII, respectively. All knees that were KLII/KLIII ($n=41$) had MRD higher than 1.8 mm (range 1.8–8.7 mm). MRD correlated significantly and positively with WORMS grades for cartilage abnormalities of MFTJ ($p < 0.001$, $r=0.758$), WORMS grades for medial meniscal tears ($p < 0.001$, $r=0.576$), and body mass index (BMI) ($p=0.011$, $r=0.315$). Correlation between MRD and MRI-detected cartilage damage remained significant after adjustment for age, BMI and medial meniscal tears score.

Conclusions: Joint space narrowing (KL > 2) on radiography is associated with higher level of meniscal extrusion. Higher values of measured MRD by ultrasound may be indicative of greater cartilage damage of MFTJ.

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