cooling device on opposite knees; IA CNTX-4975 injections and other procedures on the left and right knees were separated by 7 (± 2) days. See **Figure** for study design. IA and skin temperatures were recorded throughout the procedures. Subjects rated procedural pain at prespecified times using NPRS (0=no pain; 10=worst possible pain).

Results: Five subjects enrolled in and completed each cohort (mean age, yrs: C3, 57.6; C4, 59.6; each 80% male). In C3, mean IA temperatures decreased with both methods; mean temperatures at baseline and 105 minutes were 33.7°C and 26.7°C for ice-gel pack cooling and 32.4°C and 28.2°C for CCIWW. Skin temperature reductions between cohorts were similar; mean temperatures were 28.8°C and 14.3°C (ice-gel pack) and 28.7°C and 15.2°C (CCIWW). Mean IA temperatures in C4 at baseline and 55 minutes (15 minutes post-CNTX-4975 and/or end of last cooling period [CCIWW only]) were 33.6°C and 29.0°C for ice-gel pack cooling and 32.1°C and 27.7°C for CCIWW. Mean skin temperatures were 28.5°C and 22.8°C for ice-gel pack and 27.8°C and 18.8°C for CCIWW. Pain levels before CNTX-4975 were low. Procedural pain peaked 10–20 minutes after CNTX-4975 injection in both cohorts. While mean pain levels were similar across cohorts (**Table**), pain was reduced more effectively by CCIWW in C3 and ice-gel pack in C4. Procedural pain was not increased in the absence of post-injection cooling in C4.

Conclusion: The ice-gel pack and CCIWW effectively reduced IA knee joint temperatures and procedural pain in both cohorts. Shorter cooling time and low pain levels observed with IA CNTX-4975 and ice-gel pack cooling in C4 suggest that this strategy may be feasible in clinical practice.

Procedural Pain Over Time (min), Mean $\pm$ SE ^a	Cohort 3		Cohort 4	
	Ice-gel pack	CCIWW	Ice-gel pack	CCIWW
Baseline	0.8 $\pm$ 0.37	0.4 $\pm$ 0.24	0.4 $\pm$ 0.24	0.2 $\pm$ 0.20
10 ^b	4.2 $\pm$ 1.36	2.2 $\pm$ 1.46	2.4 $\pm$ 1.29	4.2 $\pm$ 1.20
20 ^b	3.6 $\pm$ 1.33	2.2 $\pm$ 1.20	3.0 $\pm$ 1.22	2.6 $\pm$ 1.25
30 ^b	2.6 $\pm$ 0.81	2.2 $\pm$ 0.97	2.0 $\pm$ 1.05	1.8 $\pm$ 1.11
Last assessment ^c	2.4 $\pm$ 0.81	1.4 $\pm$ 0.40	1.6 $\pm$ 1.03	2.4 $\pm$ 1.60

Cohort 3: Comparison of 2 circumferential cooling methods; Cohort 4: Shortened cooling and with/without post-CNTX-4975 cooling.
^aLower scores=less pain; ^bPost-CNTX-4975 injection; ^cApproximately 70 min post-injection for C3; 60 min for C4.

Figure: Study Procedures

A. Study Cohort 3

*Without epinephrine, 15 mL. Subjects rated pain throughout the study (orange circles). Unfilled orange circles represent time points presented in the table.

B. Study Cohort 4

Disclosure of Interests: Randall Stevens Shareholder of: Centrexion Therapeutics Corp, Employee of: Centrexion Therapeutics Corp, Kimberly Guedes Employee of: Centrexion Therapeutics Corp, Nilam Mistry Employee of: Centrexion Therapeutics Corp, Duncan Lascelles Consultant for: Centrexion Therapeutics Corp, David Ball: None declared
DOI: 10.1136/annrheumdis-2019-eular.1156

AB0811

MULTICENTER PROSPECTIVE STUDY TO ASSESS EFFICACY AND SAFETY OF INTRA-ARTICULAR INJECTIONS OF A SOLUTION COMBINING HYALURONIC ACID AND CHONDROITIN SULPHATE IN PATIENTS WITH KNEE OSTEOARTHRITIS

Elena Taskina¹, Ludmila Alekseeva¹, Natalia Kashevarova¹, Evgenia Sharapova¹, Ekaterina Strebkova¹, Sergey Anikin¹, Lena Zonova², Tatiana Raskina³, Elvira Otteva⁴, Aleksandr Lila¹, ¹V. A. Nasonova Research Institute of Rheumatology, Moscow, Russian Federation; ²FSBEI HE Novosibirsk State Medical University, Novosibirsk, Russian Federation; ³FSBEI HE KemSMU MOH, Kemerovo, Russian Federation; ⁴SBHI CDC MOH Khabarovsk kray, Khabarovsk, Russian Federation

Background:

Objectives: To assess efficacy and safety of a single intra-articular injection of a solution combining hyaluronic acid (HA) 60 mg and chondroitin sulphate (CS) 90 mg in 3 mL on patients with knee osteoarthritis (OA) in a multicenter prospective study.

Methods: 79 outpatients (predominantly females - 81.0%) from 5 RF constituent territories with primary tibiofemoral Kellgren-Lawrence score grade II or III knee OA, ≤ 40 mm pain intensity during walking on visual analogue scale (VAS), requiring NSAIDs intake (for at least 30 days during 3 months prior to enrollment) were included into the study after signing the informed consent form. Mean age was 60.3 $\pm$ 8.7 years, mean BMI - 29.2 $\pm$ 4.7 kg/m², disease duration - 6 (3 - 10) years. Grade II OA was documented in 68.4% of patients, Grade III - in 31.6%. The study lasted for 6 months. Efficacy and safety evaluations were made based on VAS pain assessment, Western Ontario and McMaster Universities Osteoarthritis Index (WOMAC) - (WOMAC pain (0-500), WOMAC function (0-1700), WOMAC stiffness (0-200)), VAS patients' health status, EQ-5D-based assessment of patients' quality of life, global physician's and patient's efficacy assessment, and daily NSAIDs requirements.

Results: Obtained results demonstrate statistically significant VAS pain reduction during walking already in 1 week after intra-articular injection of the combination (respectively, 62 (55-72) and 41 (32-51) mm, $p < 0.0001$). Moreover, pain continued to subside during all 3 months of follow up (in 1 month - 28 (20-42), in 3 months - 22 (14-37) mm). A significant pain reduction achieved at Mo 3 persisted until Mo 6 - 20 (14-42) mm, without documented pain increase (Fig. 1). Similar trends were observed with total WOMAC score (1125 (899-1540) - at baseline, and 552 (309-837) mm - by the end of the study, $p < 0.0001$), and all WOMAC sub-scores (268 (189-312) - baseline WOMAC pain, 91 (48-171) mm - by the end of the study $p < 0.0001$ (Fig. 2); stiffness - 101 (59-130) and 40 (20-61) mm, $p < 0.0001$; function - 802 (647-1095) and 402 (191-638) mm, $p < 0.0001$, respectively). Median time to the onset of therapeutic effect was 7 (5-18) days. Statistically significant improvement of patients' quality of life by EQ-5D and general health status was observed during all follow up period (respectively, 0.52 (-0.02-0.59) and 0.69 (0.59-0.80), $p < 0.0001$; 48 (30-60) and 72 (60-80) mm, $p < 0.0001$). One injection of the drug resulted in dose reduction or discontinuation of NSAIDs therapy: at baseline 76 patients (96.2%) were taking NSAIDs, in one week 31 (39.2%) patients discontinued NSAIDs, in 1 month - 72.2%, in 3 months - 73.4%, and by the end of the study at Mo 6 - 54.4% were not taking NSAIDs. These data were consistent with physician's and patient's global assessment of the efficacy of treatment, who stated «significant improvement» and «improvement» in the majority of cases, with only few «no effect» or «worsening» cases documented in analyzed population. Adverse events, such as worsening of pain and/or swelling of the joint, were documented in 8 patients (10.1%); they resolved spontaneously or following NSAIDs intake.

Fig.1. VAS pain, mm

Fig.2. WOMAC pain

Conclusion: These results suggest that intra-articular injections of hyaluronic acid plus chondroitin sulfate in patients with knee OA are efficient and safe. A single injection of the drug resulted in statistically significant reduction of pain and stiffness, reduction in NSAIDs intake, as well as improvement in patients' quality of life and function:

Disclosure of Interests: Elena Taskina Speakers bureau: Bayer, Sandoz, Boeringer-Ingelheim, Ludmila Alekseeva Speakers bureau: Bayer, Boeringer-Ingelheim, Gedeon-Richter, Servier, Natalia Kashevarova: None declared, Evgenia Sharapova: None declared, Ekaterina Strebkova: None declared, Sergey Anikin: None declared, Lena Zonova Speakers bureau: Sandoz, Pfizer, Abbvie, Novartis, Bayer, Tatiana Raskina: None declared, Elvira Otteva Speakers bureau: Pfizer, Abbvie, Novartis, Aleksandr Lila Speakers bureau: Sandoz, Pfizer, Abbvie, Novartis, Bayer

DOI: 10.1136/annrheumdis-2019-eular.4639

AB0812

PAIN CATASTROPHIZING SCORE AND GAIT, TOGETHER WITH WOMAC, ARE ALTERED IN KNEE OSTEOARTHRITIC PATIENTS UNDERGOING ARTHROPLASTY SURGERY, COMPARED WITH PATIENTS FOLLOWING CONSERVATIVE TREATMENT. PRELIMINARY RESULTS FROM HOLOA PROJECT

Laura Tio¹, Francisco Castro^{1,2}, Simone Tassani³, Santos Martinez^{1,4}, Raul Torres^{1,4}, Raquel Arredondo¹, Miguel Ángel González-Ballester^{3,5}, Joan Carles Monllau^{1,4}, Jérôme Noailly³, Jordi Monfort^{1,2}. ¹IMIM, Barcelona, Spain; ²Hospital del Mar, Rheumatology service, Barcelona, Spain; ³Pompeu Fabra University, BCN MedTech, DTIC, Barcelona, Spain; ⁴Hospital del Mar, Orthopedic Surgery and Traumatology service, Barcelona, Spain; ⁵ICREA, Barcelona, Spain

Background: Osteoarthritis (OA) is a pathology that includes several disorders that produce the same symptomatology: pain, functional impotence and inflammation. It lacks therapies that act over the physiopathology of the disease, rather than over the symptoms [1]. Patients' phenotyping is essential to describe the disorders underlying the OA symptoms, and would allow applying treatments to the altered conditions, in a personalized medicine approach.

Objectives: The HOLOA project aims to design a multivariate model that allows classifying knee OA patients according their characteristics in 3 areas: pain, clinical/morphological characteristics and articular defects. The present work is a preliminary study with the aim to describe the clinical and gait dynamics differences between OA patients classified by treatment: conservative (CNS) vs arthroplasty surgery (ART).

Methods: Prospective study of OA patients graded 2-3 in KL scale and classify by treatment. Both groups are paired by genre, age, and BMI. The studied variables are: WOMAC index (Pain (Wp), Stiffness (Wst) and Function (Wf), Hospital Anxiety and Depression Scale (HADS), London Chest Activity of Daily Living scale, Modified Baecke Physical Activity Questionnaire, Pain Catastrophizing Score (PCS), pain threshold (according to the extended peripatellar map of Arent-Nielsen) pain sensitization at the tibia anterior surface, pain temporal summation (these 3 parameters are measured with the use of an algometer [2]), ultrasound measurement of synovial hypertrophy and effusion, and gait analysis (with Helen Hayes marker protocol. Inverse dynamic analysis was performed to compute the reaction forces and torques of the OA and control leg [3]). Multivariate analysis of variance was performed for the treatment, genre, age and BMI.

Results: This study was performed with the data of the 70 patients recruited to date. They are classified as shown in Table 1.

Variable	Category	N
Gender	Male	28
	Female	42
Age	60-67	29
	68-75	41
BMI	25.5-29.9	30
	>30	40
Treatment	CNS	44
	ART	26

Only treatment factor related differences are reported.

ART group present significant higher values in Wst ($p=0.012$), Wf ($p=0.018$), and PCS ($p=0.018$), than CNS group (Figure 1). Differences in PCS values show interaction with BMI ($p=0.007$) (Figure 2). Regarding the joint, number of painful sites depend on treatment and BMI group ($p=0.032$) (Figure 3). Finally, gait study show no direct effect of the treatment, interactions are observed in the reaction forces and torques when comparing control vs OA leg, in ART and CNS group ($p=0.004$ and $p=0.002$, respectively) (Figure 4).

Figure 1- Average WOMAC stiffness (Wst) (a), WOMAC function (Wf) (b) and pain catastrophizing score (PCS) (c) in conservative and arthroplasty patients.

Figure 2- Average Pain catastrophizing score (PCS) in patients from the conservative and arthroplasty group, according to their BMI.