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THU0448 DISEASE BURDEN IN OSTEOARTHRITIS (OA) IS SIMILAR TO RHEUMATOID ARTHRITIS (RA) FROM THE PATIENT'S PERSPECTIVE, SLIGHTLY HIGHER IN RA AT PRESENTATION, SIMILAR ONE YEAR LATER, AND SLIGHTLY HIGHER IN OA TWO YEARS LATER AT ONE PRIVATE PRACTICE SETTING

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Background: Disease burden traditionally has been regarded as considerably greater in rheumatoid arthritis (RA) versus osteoarthritis (OA). However, recent reports of cross-sectional data indicate similar disease burden in OA vs RA according to MDHAQ/RAPID3 (multidimensional health assessment questionnaire/routine assessment of patient index data). One concern is that these findings may reflect only better treatment for RA, and initial disease burden may be considerably higher in RA vs OA.

Objectives: To analyze disease burden in patients with OA vs RA at baseline and 1- and 2-year follow-up according to MDHAQ/RAPID3 scores in routine care at a single rheumatologist private practice site.

Methods: All patients seen in routine care at this site complete an MDHAQ at each visit in the waiting area prior to seeing the rheumatologist. The MDHAQ includes three 0-10 scores for physical function, pain visual analogue scale (VAS), and patient global VAS, compiled into a 0-30 RAPID3, as well as 0-10 fatigue VAS, and 0-48 self-report painful joint count scores. Mean MDHAQ scores were compared in OA versus RA patients at 1st visit and visits 1 and 2 years later, using t tests, adjusted for age and body mass index (BMI) using analysis of variance (ANOVA).

Results: Among 101 OA and 175 patients with RA, at first visit, all MDHAQ scores except pain VAS were statistically significantly higher in RA vs OA, e.g., mean 0-30 RAPID3 was 11.9 in OA and 13.7 in RA. However, none of these differences appear clinically significant (Table). After 1-year, all scores were improved, but more in RA vs OA patients (Table), e.g., mean RAPID3 of 11.5 in OA and 10.9 in RA; no differences between OA and RA were statistically or clinically significant. After 2-years, mean RAPID3 was 11.9 in OA vs 9.0 in RA, indicating continued improvement in RA but little change in OA. All scores other than fatigue VAS were higher in OA, including the self-report painful joint count. Differences between OA and RA were explained only minimally by age and BMI.

Table. Mean MDHAQ scores in patients with primary OA or RA at 1st visit, and 1 or 2 years later

Mean scores at...	1st visit			1-year later			2-years later			P Change in OA vs RA	
	OA	RA	P	OA	RA	P	OA	RA	P	1 year	2 years
# patients	101	175		101	175		45	113			
RAPID3 (0-30)	11.9	13.7	0.03	11.5	10.9	0.50	11.9	9.0	0.02	0.004	0.0004
Function (0-10)	0.63	0.78	0.03	0.61	0.66	0.43	0.72	0.53	0.046	0.119	0.009
Pain (0-10)	5.0	5.5	0.16	4.9	4.3	0.43	4.7	3.6	0.03	0.004	0.004
PATGL (0-10)	4.8	5.6	0.01	4.6	4.4	0.54	4.9	3.7	0.009	0.005	0.0001
Fatigue (0-10)	3.9	4.9	0.008	3.7	4.0	0.43	3.6	4.0	0.41	0.073	0.359
Self-report painful JC 48 (0-48)	12.0	15.4	0.014	9.5	11.7	0.10	11.9	10.2	0.35	0.415	0.035

Abbreviations: MDHAQ=multidimensional health assessment questionnaire, OA=osteoarthritis, RA=rheumatoid arthritis, RAPID3=routine assessment of patient index data, PATGL= patient global assessment, JC=joint count

Conclusion: Most MDHAQ/RAPID3 scores were higher in RA than in OA at the first visit, indicating greater severity of RA, although OA was almost as severe. One year later, scores were similar with no statistically significant differences. Two years later, most scores were higher in OA. These findings likely reflect superior treatments for RA vs OA. At an individual level, patients with primary OA may have better or poorer status than other patients with primary RA. Nonetheless, at a group level, the severity of disease burden in OA appears almost as great as in RA, and becomes greater over the next 2 years, likely as a result of better treatment. The severity of OA is underrated, suggesting a need for increasing resources for research toward better treatment for OA.

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Genentech/Roche, Janssen, Merck, Novartis, Pfizer, and Sanofi/Regeneron, Mariam Riad: None declared, Theodore Pincus: None declared
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THU0449 EFFECT MODERATION OF ANALGESIC TREATMENT OUTCOMES BY DEPRESSION IN PERSONS WITH OR AT-RISK FOR SYMPTOMATIC KNEE OSTEOARTHRITIS

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Background: Depression often accompanies knee osteoarthritis (OA), exacerbates pain severity, and may negatively affect analgesic treatment outcomes.

Objectives: To determine whether depression moderates the effect of analgesics on pain severity in persons with or at-risk for symptomatic knee OA.

Methods: Participants (n=2059) were from the Osteoarthritis Initiative, with or at-risk for symptomatic knee OA, and had complete data on selected measures at baseline and four annual follow-up visits. Analgesic initiation (acetaminophen, non-steroidal anti-inflammatory drugs, opioids) was assessed at three annual follow-up visits in those who were not analgesic users at baseline. Depression was evaluated concurrent to assessment of analgesic use with the Center for Epidemiological Studies Depression (CES-D) scale using the corresponding CES-D screening threshold (CES-D score ≥ 16). Pain severity at the fourth annual follow-up visit was the outcome and measured with the Western Ontario and McMaster Universities Osteoarthritis Index (WOMAC) pain scale (rescaled range = 0-100). Time-invariant confounders measured at baseline were: age, gender, race, education, marital status, employment, health insurance, smoking, alcohol consumption, Charlson comorbidity index, and symptomatic knee OA status. Time-varying confounders measured at three annual follow-up visits were: WOMAC pain score, Kellgren-Lawrence grade, body mass index, physical performance, knee injuries, and knee injections. Structural nested mean models appropriate for evaluating time-varying effect moderation of dynamic treatments by evolving effect modifiers were implemented using an inverse-probability-of-treatment-weighting regression-with-residuals approach.

Results: In non-depressed participants, analgesic treatment effect at years one, two, and three on pain severity at year four was minimal (Figure 1). Time-specific associations in the non-depressed ranged from -1.18 (95% CI: -2.94, 0.59) to 0.81 (95% CI: -0.99, 2.61) and were not statistically significant. The persistent use of analgesics at years one and two ($\beta = -2.17$; 95% CI: -4.62, 0.27) or years one, two, and three ($\beta = -1.36$; 95% CI: -4.22, 1.50) did not increase the magnitude of the treatment effect in non-depressed participants. In contrast, time-specific associations in depressed participants increased during follow-up from 0.61 (95% CI: -9.17, 10.38) to -9.64 (95% CI: -17.96, -1.33), and the treatment effect of year three analgesic use on year four pain severity was statistically significant. The magnitude of the treatment effect increased from year one with persistent analgesic use at years one and two ($\beta = -5.75$; 95% CI: -20.65, 9.15) and years one, two, and three ($\beta = -15.39$; 95% CI: -33.99, 3.21). However, effect moderation was only significant concerning year three analgesic use, where the subsequent difference in treatment effect between depressed and non-depressed participants was -10.46 (95% CI: -18.97, -1.94).

Figure 1. Cumulative Effects (Treated vs. Untreated) of Analgesic Use on Pain Severity By Depression Status

Abstract THU0449 – Figure 1

Conclusion: Findings indicate a significantly greater one-year treatment effect of analgesic use that lowered pain severity in persons with or at risk for symptomatic knee OA who also had depression. Thus, knee OA patients with depression may derive more benefit from analgesic treatment for chronic pain than non-depressed patients, perhaps because their pain is undertreated in routine clinical practice.

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THU0450 QUALITY OF LIFE OF PATIENTS WITH A COMBINATION OF SARCOPENIA AND OSTEOARTHRITIS OF LOWER EXTREMITY

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Background: In accordance with the updated recommendations of the EWGSOP (2018), sarcopenia is a muscle disease (muscle failure) rooted in adverse muscle changes that accrue across a lifetime [1]. Sarcopenia and osteoarthritis significantly affect the self-esteem quality of life which is associated with a decrease in muscle strength and muscle performance, falls, joint pain [2]. In 2015, the SarQoL[®] questionnaire (Sarcopenia and Quality of Life, www.sarqol.org) was developed, specific to patients with sarcopenia. Improvement of quality of life should be the priority of any interventions to prevent and treat osteoarthritis and sarcopenia in the ageing population [3].

Objectives: Perform quality of life analysis in patients with osteoarthritis and sarcopenia.

Methods: Prospective study of 159 women, mean age 74 ± 13.3. Sarcopenia was diagnosed according to the algorithm proposed by the European Working Group on Sarcopenia in Older People (EWGSOP, 2010). Life quality assessment was performed using EQ-5D questionnaires and a specific questionnaire in patients with sarcopenia SarQoL.

Results: 31.45% of people with OA older than 65 years had sarcopenia. The results of the study showed a statistically significant decrease in overall health on the questionnaire EQ-5D in patients with sarcopenia compared with patients without sarcopenia (0.48 ± 0.22 points and 0.74 ± 0.27 points, respectively, p < 0.01) and no differences according to the EQ-VAS scale in the studied groups (p > 0.05). The decrease in the general health status of EQ-5D in patients with OA sarcopenic compared with non-sarcopenic is associated with a restriction of the usual daily activities: in 70% (95% CI: 55.4-82.1) and 52.3% (95% CI: 42.5-61.9) respectively, (p < 0.01). In patients with OA, reduced global SarQoL in sarcopenic subjects compared to non-sarcopenic ones: 50.65±14.23 vs. 75.10±14.46, p<0.001. Significantly lower scores for all domains were found in patients with OA sarcopenic compared with non-sarcopenic patients (p<0.001).

Conclusion: In patients with OA sarcopenic, the quality of life is worse than that of non-sarcopenic due to a decrease in habitual daily activities, probably associated with low muscle strength.

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THU0451 CHONDROITIN SULFATE USE AND INCIDENCE OF CANCER: A LONGITUDINAL ANALYSIS OF THE OSTEOARTHRITIS INITIATIVE DATA

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Background: Chondroitin sulfate (CS) is widely used nutritional supplement for the treatment of osteoarthritis. There is growing *in vitro* evidence that CS may play a role in oncogenesis and metastasis of several solid tumors including melanoma [1] and breast cancer [2]. The data evaluating pro-oncogenic effects of CS in humans are lacking.

Objectives: To assess influence of CS use on incidence of cancer.

Methods: For the current study we used 6-year longitudinal data obtained from the Osteoarthritis Initiative (OAI) progression (n= 1390) and incidence (n = 3284) subcohorts, which are publicly available at <https://oai.nih.gov>. To reduce the risk of bias, only participants who did not take CS at baseline were included in the analysis (a “new-user” design). Incident cancer was defined as an occurrence of self-reported cancer, other than skin cancer, leukemia or lymphoma. The information on self-reported cancer was collected from the Charlson Comorbidity Index. CS users with cancer were defined using the following criteria (1) a person who used CS for at least 6 months (2) chondroitin use was at least 1 year before the incident self-reported cancer. For CS users without a cancer, the duration of CS use had to be at least 6 months. All other participants were classified as non-users. To examine the cancer risk for CS users compared with non-users, we calculated the incidence rate ratios (IRRs), adjusting for age (2-year age groups), using the Mantel-Haenszel test.

Results: A total of 3167 participants neither having cancer nor taking CS at baseline were included in the analysis. There were 570 (21.95%) new users of CS. We identified 160 (6.2%) and 37 (6.5%) cases of incident self-reported cancer in the non-users and users groups, respectively. The adjusted IRR for the association between CS use and cancer was 0.22 (95% CI 0.77-1.62) which was not statistically significant (p = 0.64).

Conclusion: CS use was not associated with excess overall incidence of self-reported cancers. Nonetheless, given the strong *in vitro* evidence of CS pro-oncogenic effects on several types of tumors there is a need for further epidemiological data evaluating CS effects on specific kinds of cancer.

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THU0452 PREVALENCE OF AXIAL OSTEOARTHRITIS IN SPAIN: EPISER-2016

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Background: Osteoarthritis (OA) is a heterogeneous group of diseases with common clinical and radiographic manifestations involving the peripheral and axial skeletal. OA is the most prevalent rheumatic disease however, there are very few publications focused in axial OA. In 2016, the Spanish Society of Rheumatology (SER) started a population descriptive study (EPISER 2016) to analyze the prevalence of 13 rheumatic diseases