tNSAIDs had the most patients with emergency department visits (20.8% vs. 16.7% in both COX-2s and oral tNSAIDs), and COX-2 had the most patients with inpatient visits (18.1% vs. 15.4% for topical tNSAIDs and 11.8% for oral tNSAIDs). Oral tNSAIDs had the lowest total all-cause cost (\$6,504), and the topical tNSAIDs cohort had the highest costs (\$8,455), but fairly comparable with COX-2s (\$8,289). During follow-up, oral tNSAIDs patients stayed mostly on oral tNSAIDs as less than 15% of oral tNSAIDs patients later had a prescription for COX-2s or topical tNSAIDs. 37% of COX-2 patients and 56% of topical tNSAIDs patients later took oral tNSAIDs. Topical tNSAIDs patients had an average of 184.4 days of supply for topical tNSAIDs yet also extensively used oral NSAIDs during follow-up (average days of supply for oral tNSAIDs was 315.5 days and for COX-2s was 383.5 days).

Conclusion: This study suggests that patients with more complex comorbidity profiles, including higher rates of adverse effects, often start pharmacological treatment with topical tNSAIDs. However, patients who start treatment with topical tNSAIDs switch to other types of NSAIDs; oral tNSAIDs were the most frequently prescribed treatment across the cohorts. Thus, despite the safety concerns with oral tNSAIDs and COX-2s, patients are still placed on these treatments to manage their OA pain. There is a need for new innovative treatments as there is currently a lack of other options.

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POS0284

CLINICAL AND MRI COMPARISON OF ECCENTRIC VERSUS CONCENTRIC REHABILITATION IN SYMPTOMATIC KNEE OSTEOARTHRITIS: A PROSPECTIVE RANDOMIZED STUDY

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Background: Rehabilitation is at the center of the non-medical management of knee osteoarthritis. Concentric muscle strengthening is often preferred, while eccentric contractions play an important role in controlling knee flexion and knee stability and allow the development of a high level of strength with a low energy cost. But few studies have focused on these two technique

Objectives: To explore the effect of a 6-week-exercise program on function, pain and performance level in symptomatic knee osteoarthritis patients

Methods: An analysis was performed of the data from 60 individuals with symptomatic knee osteoarthritis who were included in the EXART study. The EXART study was a prospective, randomized controlled trial which included patients aged 40 to 85 with KL 2 or 3 responding to the American College of Rheumatology criteria. The first group benefitted from a 6 week eccentric rehabilitation program and the second group from a standard 6 week concentric rehabilitation program. The endpoints were the changes from baseline to week 6 in Western Ontario and McMaster Universities Osteoarthritis Index (WOMAC), pain, and performance measured with quadriceps power (PMax) and contraction strength (MMax). MRI muscle analysis was performed before and after physical activity.

Results: Among 80 patients screened, 60 were included in the study and randomized. 25/30 subjects finished the program in the concentric group and 28/30 in the eccentric group. The mean population age was 74 (+/-8), mean IMC 27.2 (+/-4). The baseline total WOMAC mean was 49.2 (+/-19), VAS pain 5.3 (+/-2). At 6 weeks, both groups showed a significant improvement compared to baseline for the WOMAC without any difference between the two groups (mean difference evolution concentric = 7.5 ± 11.9 (p= p<0.0001); mean difference evolution

eccentric = 4.5 ± 1.9 (p<0.0001); intergroup analysis p=0.7). Similar significant results were found in the WOMAC function subscale. No difference between the groups appeared in VAS pain evolution (p= 0.7). The eccentric group showed a significant improvement in PMax and high speed MMax evolution (p=0.001 and p=0.002). This improvement was not found for the concentric group (p= 0.52 and p=0.27). MRI showed a vastus medialis hypertrophy only in the eccentric group (p=0.002). We did not observe any change in the fatty infiltration of the quadriceps on MRI.

Conclusion: Rehabilitation, whether eccentric or concentric, has a beneficial action on function and pain in symptomatic knee osteoarthritis whatever the methods. A gain in muscle performance and vastus medialis volume was found only with the eccentric rehabilitation. This study confirms the importance of any type of rehabilitation in knee osteoarthritis and raises the question of the relation between muscle gain/performance and function or pain

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POS0285

ARE RACIAL DISPARITIES IN REVISION TKA OUTCOMES ASSOCIATED WITH HOSPITAL OR SURGEON VOLUME?

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Background: Total knee arthroplasty (TKA) outcomes are linked to surgical volume,¹ despite the increase in TKA utilization, racial disparities in TKA outcomes persist. Blacks in the US are at a higher risk of aseptic revision of TKA (R-TKA) when compared to Whites, yet the reasons for this are not understood.

Objectives: The objective of this study is to examine the relationship between hospital and surgeon annual TKA volume and R-TKA outcomes by race.

Methods: This is an observational cohort study. New York Statewide Planning and Research Cooperative System data for 2004 – 2013 was used to identify patients who underwent primary TKA. Data through 2015 was used to identify R-TKA within 2 years of the index TKA. Hospital characteristics were obtained from the AHA Annual Survey. Surgeon data was collected from New York State Education Department and New York State Physician Profile. Surgeon annual TKA volume was categorized based on cutoffs established by Wilson et al¹ as <=12, 13-59, 60-145 or >= 146, and hospital TKA volume as <=89, 90-235, 236-644 and >=645. We calculated the odds of R-TKA in Whites and Blacks separately and generated crude odds ratios (OR) comparing Blacks to Whites to examine trends across volume categories. A multivariable logistic regression model adjusted for known R-TKA risk factors was also performed.

Results: A total of 163,576 patients were included. Mean (SD) age was 66.4 (10.4) years, 107,233 (65.6%) were female, 124,277 (76.6%) were White and 15,990 (9.8%) were Black. 2925 patients underwent aseptic R-TKA. In logistic regression analysis, Blacks had a higher risk of R-TKA (OR 1.42, 95%CI 1.26-1.6) (Table 1). Risk of R-TKA was also higher when surgeon annual volume was <=12 (OR 1.5, 95%CI 1.25-1.8) or 13-59 (OR 1.16, 95%CI 1.04-1.29) TKA compared to the highest volume surgeons (>=146). Patients who had surgery at a hospital with annual volume of 236-634 TKA were less likely to undergo R-TKA compared to the highest volume hospitals (>=645) (OR 0.88, 95%CI 0.79-0.98). Other risk factors for R-TKA were younger age and worker's compensation, while patients with inflammatory arthritis had a lower risk. Figures 1A and 1B show the odds of R-TKA in Whites and Blacks, respectively, by hospital and surgeon volume. Figure 1C shows the crude OR for Blacks to Whites for each category pair. The OR ranged from 0.9 to 2.5, with the largest disparity found in patients who have TKA performed by surgeons with 60-145 annual TKA volume at the highest volume hospitals (>=645).

Conclusion: Patients having TKA by a surgeon performing <60 TKA per year have higher risk of R-TKA. Racial disparities in R-TKA risk are highest for TKA by surgeons performing 60-145 TKA per year at hospitals performing >=645 TKA per year. Future studies should examine factors, such as whether trainees are involved the surgery, that may vary based on social determines of health, such as patient race and payor.

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Table 1. Logistic regression of risk for R-TKA

Variable (reference)	Level	Odds ratio	95% CI	p-value
Age	--	0.95	0.94-0.95	<.001
Sex (female)	Male	1.07	0.99-1.15	0.108
Race (white)	Asian	0.65	0.42-0.96	0.031
	Black	1.42	1.26-1.6	<.001
	Unknown	0.81	0.64-1.02	0.07
	Other	1.05	0.92-1.21	0.446
Insurance (Medicare)	Medicaid	0.89	0.75-1.06	0.193
	Other	0.89	0.7-1.13	0.331
	Private	0.82	0.74-0.91	<.001
	Work compensation	1.56	1.35-1.8	<.001
Surgeon volume (>=146)	<=12	1.5	1.25-1.8	<.001
	13-59	1.16	1.04-1.29	0.006
	60-145	1.0	0.91-1.11	0.957
Hospital volume (>=645)	<= 89	0.98	0.84-1.15	0.848
	90-235	0.99	0.88-1.12	0.869
	236-644	0.88	0.79-0.98	0.018
Hospital bed size (>400 beds)	6-199	1.13	1.02-1.25	0.024
	200-399	1.06	0.96-1.17	0.262

Other variables in model: diabetes, obesity, renal disease, COPD, osteoarthritis, osteonecrosis, dislocation, inflammatory arthritis, surgical complication, infection, no college, poverty >20%, years since residency, US/Canada medical school, orthopedic board certified, AHA control, teaching, rural hospital

Figure 1. Odds and odds ratio of aseptic revision TKA for black and white patients by hospital and surgeon volume category

*Odds are multiplied by 100 for easier visualization

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Oncorheumatology

POS0286

INCIDENCE OF MALIGNANCIES IN JAPANESE PATIENTS WITH RHEUMATOID ARTHRITIS: DATA FROM A LARGE JAPANESE NATIONAL REGISTRY

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Background: Patients (pts) with rheumatoid arthritis (RA) have an increased risk of some malignancies vs the general population, and this can vary by region/race.^{1,2} Data on the epidemiology and impact of biological (b)DMARDs and targeted synthetic (ts)DMARDs, such as Janus kinase (JAK) inhibitors, on the incidence of malignancies in Japanese pts with RA are limited. The National

Database of Rheumatic Diseases in Japan (NinJa) is one of the largest RA registries in Japan.

Objectives: To evaluate the incidence of malignancies in Japanese pts with RA using NinJa registry data.

Methods: This retrospective observational study analysed NinJa registry data for Japanese pts with RA aged ≥18 years with ≥1 data entry between 2013 (first JAK inhibitor approval for RA in Japan) and 2018. The overall cohort included all pts with RA, and two sub-cohorts were analysed: pts exposed and unexposed to bDMARDs (exposure defined as ≥1 bDMARD reported in database). Crude incidence rates (IRs) for malignancies (including non-melanoma skin cancer) were calculated as the number of events per 100 pt-years of follow-up (time between start of follow-up or the date of first bDMARD exposure [for bDMARD-exposed pts] and end of observation period, or withdrawal from database). The most recent data for incidence of malignancy in the Japanese general population (2013–2017 data from the National Cancer Center, Japan) were used to calculate standardised incidence ratios (SIRs) and age- and sex-adjusted standardised rates (ASRs) for malignancies. Cross-sectional (per calendar year) and cumulative analyses were performed for the overall cohort. Cumulative rates were calculated for sub-cohorts, and all cumulative analyses were repeated excluding pts exposed to JAK inhibitors (ie ≥1 JAK inhibitor reported in database).

Results: Data were collected for 26 607 Japanese pts with RA from 2013–2018. In the cross-sectional analysis (Table 1), the SIR and ASR for malignancies in all pts with RA were generally consistent from 2013–2018. In the cumulative analysis, the SIR (95% CI) for malignancies from 2013–2018 was 0.97 (0.91, 1.03) in all pts with RA, and 0.93 (0.82, 1.04) and 0.99 (0.92, 1.07) in pts exposed and unexposed to bDMARDs, respectively (Figure 1). Adjusting for age/sex, the cumulative ASR (95% CI) for malignancies from 2013–2018 was 0.83 (0.76, 0.90) in all pts with RA, and 0.82 (0.69, 0.95) and 0.86 (0.77, 0.96) in pts exposed and unexposed to bDMARDs, respectively (Figure 1). In all cohorts, the cumulative SIR and ASR were similar when pts exposed to JAK inhibitors were excluded (Figure 1).

Table 1. Cross-sectional analysis of the incidence of malignancies in Japanese pts with RA from 2013–2018

	All RA					
	2013 (N=13 423)	2014 (N=15 584)	2015 (N=15 751)	2016 (N=16 107)	2017 (N=15 994)	2018 (N=15 003)
Total follow-up, PY	13 353	14 866	14 829	14 970	14 748	14 898
Pts with events, n	140	164	174	168	161	211
Crude IR ^a	1.05	1.10	1.17	1.12	1.09	1.42
(95% CI)	(0.89, 1.24)	(0.95, 1.29)	(1.01, 1.36)	(0.97, 1.31)	(0.94, 1.27)	(1.24, 1.62)
ASR ^{a,b}	0.76	0.76	0.90	0.88	0.80	0.88
(95% CI)	(0.60, 0.93)	(0.62, 0.90)	(0.68, 1.11)	(0.68, 1.07)	(0.62, 0.98)	(0.74, 1.01)
SIR ^b	0.97	1.01	1.02	0.88	0.86	1.10
(95% CI)	(0.82, 1.14)	(0.86, 1.17)	(0.87, 1.18)	(0.75, 1.02)	(0.73, 1.00)	(0.95, 1.25)

^aIR/ASR were calculated as number of events per 100 PY of follow-up^bData from a Japanese general population database of malignancy incidence from 2013–2017, provided by the Center for Cancer Control and Information Services, National Cancer Center, JapanPY, pt-years

Conclusion: The incidence of malignancies in Japanese pts with RA, registered in the NinJa database from 2013–2018, was similar to that in the Japanese general population. The SIR and ASR for malignancies were comparable in pts exposed and unexposed to bDMARDs. In all cohorts, rates did not increase when pts exposed to JAK inhibitors were included.

Figure. Cumulative analysis of the incidence of malignancies in Japanese pts with RA from 2013–2018

^aIR/ASR were calculated as the number of events per 100 PY of follow-up

^bData from a Japanese general population database of malignancy incidence from 2013–2017, provided by the Center for Cancer Control and Information Services, National Cancer Center, JapanPY, pt-years

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