Table 1. Comorbidities that were more prevalent in RA cases than controls at the time of baseline survey*

Comorbidity	N (%)		p-value
	RA cases (N = 821)	Controls (N = 2455)	
Osteoarthritis	370 (50)	915 (38)	< 0.001
Fibromyalgia	114 (15)	144 (6)	< 0.001
Autoimmune disorder	123 (16)	95 (4)	< 0.001
Epilepsy	22 (3)	29 (1)	0.003
Cataracts	278 (35)	699 (29)	0.003
Myocardial infarction	63 (8)	88 (4)	< 0.001
COPD	47 (6)	88 (4)	< 0.001
Sleep apnea	164 (20)	352 (15)	< 0.001
Pulmonary fibrosis	16 (2)	10 (0.4)	< 0.001
Gastroesophageal reflux disease	304 (38)	675 (28)	< 0.001
Inflammatory bowel disease	37 (5)	40 (2)	< 0.001

*significance threshold was set at $p < 0.01$ given multiple comparisons

COPD = chronic obstructive pulmonary disease

Conclusion: Many comorbidities were associated with RA, including several potentially novel comorbidities such as COPD, epilepsy, and acid reflux. RA was not associated with an increased risk of cancer. The increased occurrence of inflammatory bowel disease and type 1 diabetes prior to RA suggests either a predisposition to RA development or a shared immunological defect, meriting further study.

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OP0089

METABOLIC SYNDROME IS COMMON AROUND THE TIME OF EARLY RHEUMATOID ARTHRITIS DIAGNOSIS AND ASSOCIATIONS VARY BY SEX AND MENOPAUSAL STATUS: RESULTS FROM THE CANADIAN EARLY ARTHRITIS COHORT

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Background: Prevalence studies of metabolic syndrome (MetS) in early rheumatoid arthritis (ERA) are sparse and estimates are variable. Differences by sex and menopausal status have not been formally assessed.

Objectives: We estimated prevalence and factors associated with MetS in ERA patients treated in routine practice settings. Variations by sex, and by menopausal status were also examined.

Methods: Cross-sectional data were analyzed from patients meeting 1987 or 2010 ACR/EULAR RA criteria enrolled in the Canadian Early Arthritis Cohort (CATCH) from January 2007-March 2017. CATCH is a prospective multicenter observational study of patients diagnosed and treated for early inflammatory arthritis (symptoms < 1 year) by a rheumatologist. Participants completed standardized clinical assessments and patient-reported outcome measures. Laboratory testing of metabolic parameters was encouraged, but left to the discretion of the rheumatologist. MetS was defined according to modified WHO criteria¹ as ≥ 2 of the following: body mass index (BMI) ≥ 30 , hypertension, low high-density lipoprotein (HDL) cholesterol, dyslipidemia, or impaired glucose intolerance (IGT)¹. Univariate and multivariable logistic regression was used to estimate crude and adjusted associations between baseline demographic, clinical and lifestyle variables with prevalent MetS in men and in women, respectively.

Results: The sample included 1543 participants; 71% were female and mean (SD) age was 54 (15) years. 476 (31%) of the total sample met criteria for MetS. Participants with MetS were older, more frequently past smokers and reported more comorbid conditions, including cardiovascular disease (CVD) ($p < 0.0001$).

MetS prevalence was higher in men (42%) than women (26%, $p < 0.0001$) and higher in post-menopausal (33%) vs. pre-menopausal women (15%, $p < 0.0001$). Post-menopausal women had a higher frequency of hypertension (65%), IGT (32%) and dyslipidemia (21%) compared to pre-menopausal women ($p < 0.001$). In multivariable logistic regression MetS was negatively associated with seropositivity and pulmonary disease in men; with corticosteroid use in menopausal women; and with psychiatric comorbidity in pre-menopausal women.

Conclusion: Approximately 1 in 3 ERA patients met criteria for MetS. Though men had a higher prevalence of MetS and individual MetS components, post-menopausal women had a similar MetS profile as men, and should equally be considered high risk for CVD development. Characteristics and associations with MetS differed in men and women suggesting sex-specific variations are important considerations for comorbidity screening and surveillance of CVD outcomes in ERA.

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OP0090

THE OCCURRENCE OF SUBCLINICAL AND CLINICAL ATHEROSCLEROSIS IN RHEUMATOID ARTHRITIS, RESULTS FROM THE 3-YEAR, MULTICENTER, PROSPECTIVE, OBSERVATIONAL, GIRRCS STUDY

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Background: The systemic inflammatory process and the "traditional" cardiovascular (CV) risk factors could synergize the enhancement of CV burden in rheumatoid arthritis (RA) [1].

Objectives: To assess the occurrence and the predictive factors of subclinical and clinical atherosclerosis in patients with RA.

Methods: During 2015, consecutive patients, admitted to Italian Rheumatology Units, were assessed in GIRRCs (*Gruppo Italiano di Ricerca in Reumatologia Clinica e Sperimentale*) cohort [2]. After that, patients were followed-up in a 3-year, prospective, observational study, assessing the occurrence of subclinical (carotid and/or peripheral arteries atherosclerotic lesions detected by ultrasound imaging) and clinical atherosclerosis (myocardial infarction and/or congestive heart failure and/or cerebrovascular accidents) and possible predictive factors. McNemar test was employed to assess the changes in subclinical and clinical atherosclerosis and regression analyses exploited the ORs for the occurrence of those comorbidities.

Results: After 3 years of prospective follow-up, 797 patients (82.7% female, median age of 60 years, range 21-89) were assessed. We also observed a median RA duration of 8.35 years (range 0.1-35), 70.9% of patients showed rheumatoid factor and 55.7% ACPA. Among "traditional" CV risk factors, we observed that BMI was 27.21 ± 4.05 , 33% of patients reported smoking habit, 49.3% were affected by high blood pressure (HBP) and 12.3% by type 2 diabetes (T2D). Corticosteroids were administered in 75.5% of patients (low dosage 66.8%), methotrexate in 86.8%, hydroxychloroquine in 28.1% and biologic DMARDs in 60.7%. The remission was reached and maintained in 42.6% of patients, during the follow-up. We recorded an increased rate of subclinical atherosclerosis (70 vs 130 patients $p < 0.0001$) and clinical atherosclerosis (30 vs 46 patients, $p < 0.001$), at the end of follow-up. The multivariate regression analysis showed that T2D (OR: 4.50, 95%CI: 1.74-11.62, $p = 0.002$), HBP (OR: 2.03, 95%CI: 1.04-4.14, $p = 0.042$), ACPA (OR: 2.36, 95%CI: 1.19-4.69, $p = 0.002$) and mean values of CRP during the follow-up (OR: 1.07, 95%CI: 1.03-1.14, $p = 0.040$) were associated with subclinical atherosclerosis. Differently, the maintenance of remission was associated with a reduced risk of subclinical atherosclerosis (OR: 0.25, 95%CI: 0.11-0.56, $p = 0.001$). The multivariate regression analysis showed that T2D was associated with clinical atherosclerosis (OR: 6.21, 95%CI: 2.19-17.71, $p = 0.001$). Conversely, the maintenance of remission was associated with a reduced risk of clinical atherosclerosis (OR: 0.20, 95%CI: 0.09-0.95, $p = 0.041$).

Conclusion: The maintenance of remission was strongly associated with a reduced risk of clinical and subclinical atherosclerosis in 3-year prospective follow-up. Among "traditional" CV risk factors, T2D was significantly associated with both clinical and subclinical atherosclerosis.

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OP0091

RISK OF MEDICAL COMPLICATIONS FOLLOWING TOTAL HIP OR KNEE ARTHROPLASTY IN PATIENTS WITH RHEUMATOID ARTHRITIS: A NATIONWIDE REGISTER-BASED COHORT STUDY

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Background: Total hip and total knee arthroplasty (THA/TKA) are major surgeries carrying a risk of complications. Patients with rheumatoid arthritis (RA) are at increased risk of venous thromboembolism (VTE), arterial thromboembolic events (ATE), and infections in a non-surgical setting.

Objectives: To investigate the risk of VTE, ATE, and non-surgical infection following THA/TKA in patients with RA compared with osteoarthritis (OA); and to explore the impact of biologics treatment.

Methods: In a nationwide register-based study, patients with RA and OA who had elective THA/TKA in 2000-2014 were identified in the Danish Hip Arthroplasty Register/Danish Knee Arthroplasty Register and followed up to 90 days after surgery for the occurrence of VTE, ATE, and infections. Cox models stratified on sex and type of surgery (THA vs TKA) and adjusted for age, calendar period, history of chronic obstructive pulmonary disease (COPD), diabetes mellitus (DM), cancer, VTE and CVD were carried out. Outcome information was obtained through linkage with the Danish National Patient Registry.

In DANBIO, we identified RA patients treated with biologics within 90 days preceding surgery and estimated their risk of each outcome compared with non-biologics treated RA patients in a Cox model adjusted for the propensity score (PS) of receiving biologics as a restricted cubic spline covariate. The PS was conditional on age, sex, calendar period, use of methotrexate, other csDMARDs, and/or glucocorticoids, pre-surgical DAS28, HAQ-DI, VAS physician, and COPD, DM, cancer and/or VTE.

Results: In total, 2899 and 112,571 patients with RA and OA were followed-up (Table).

Conclusion: In this nationwide cohort study, RA patients were at increased risk of infection after THA/TKA compared to OA patients, but treatment with biologics did not further increase the risk.

As seen in other studies RA patients had a lower risk of VTE following TKA when compared with OA patients, but our finding of an increased incidence of VTE in biologics-treated patients warrants further studies.

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Table. Patient characteristics and risk of venous thromboembolism (VTE), arterial thromboembolism (ATE), and non-surgical infection following total hip or total knee arthroplasty (THA/TKA) among patients with rheumatoid arthritis (RA) compared with osteoarthritis (OA), and biologics treated compared with non-biologics treated RA patients.

	RA 2899	OA 112,571	p	Biologics treated 411	Non-biologics treated 1391	p
N						
Female	73%	58%	<0.001	73%	74%	0.43
Age at surgery, mean (s.d.)	66 (11)	69 (10)	<0.001	62 (12)	65 (10)	<0.001
Had TKA surgery	63%	44%	<0.001	67%	63%	0.09
Received thromboprophylaxis	99%	99%	0.53	97%	99%	0.002
History of VTE	3%	2%	0.001	3%	4%	0.31
Prevalent CVD	17%	15%	0.01	11%	15%	0.07
History of cancer	6%	7%	0.03	4%	6%	0.05
History of hospitalisation due to infection	10%	4%	<0.001	12%	8%	0.02
Outcome	Events, n (%)		HR (95%CI)		Events, n (%)	HR (95%CI)
VTE	25 (1.0)	1167 (1.3)	0.7 (0.5 to 1.1)	8 (1.9)	7 (0.5)	5.5 (1.7 to 18.4)
ATE	22 (0.8)	849 (0.7)	1.2 (0.8 to 1.8)	4 (1.0)	8 (0.6)	2.8 (0.7 to 11.1)
Infection	73 (2.5)	2224 (2.0)	1.3 (1.0 to 1.6)	11 (2.7)	35 (2.5)	0.9 (0.4 to 1.9)

Abbreviations: HR, hazard ratio, 95%CI, 95% confidence interval.

RA was associated with an increased risk of infection, but a lower risk of VTE ($HR_{TKA}=0.6$, 0.3 to 1.0, $p=0.04$). Compared with non-biologics treated, biologics-treated patients were not at increased risk of infection but had a 5-fold increased risk of VTE.