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FACTORS ASSOCIATED WITH SUBCLINICAL ATHEROSCLEROSIS IN PATIENTS WITH RHEUMATOID ARTHRITIS

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Objectives: To describe the prevalence of subclinical atherosclerosis measured as carotid intima-media thickness (cIMT) in patients with rheumatoid arthritis (RA) and to analyze the associated factors.

Methods: We performed an observational study of 60 patients with RA and 60 sex and age-matched controls. Patients with dyslipidemia were excluded. The main variable was the cIMT measured by ultrasound. The maximum cIMT was measured and atheromatous plaque was defined as focal thickening of the arterial wall protruding toward the lumen and measuring >0.5 mm or more than 50% of the neighboring cIMT. The other variables included were clinical and laboratory values, lipid metabolism, the 28-joint Disease Activity Score (DAS28), International Physical Activity Questionnaire (METs) and Adherence to a Mediterranean diet (MEDAS). Descriptive, bivariate and two multivariate models were constructed to identify factors associated with pathologic cIMT in all subjects and other in RA patients.

Results: The baseline characteristics of both groups are shown in Table 1. The RA patients did not have differences in the mean (SD) of maximum cIMT in relation to the controls (0.77 [0.1] vs 0.75 [0.1]; $p = 0.392$), nor in the number of plaques (16 [26.7%] vs 10 [16.7]; $p = 0.184$). The factors associated with maximum cIMT in the total sample were male sex ($\beta = 0.182$; $p = 0.039$), age ($\beta = 0.010$; $p < 0.001$), METs ($\beta = -2.19$; $p = 0.008$), MEDAS ($\beta = -0.177$; $p = 0.038$). While the factors associated with maximum cIMT in patients with RA were: male sex ($\beta = 0.155$; $p = 0.003$), age ($\beta = 0.005$; $p = 0.007$), MEDAS ($\beta = -0.022$; $p = 0.017$), DAS28 ($\beta = 0.036$; $p = 0.003$) and ACPA ($\beta = 0.082$; $p = 0.052$).

Table 1. Baseline characteristics of 60 patients with RA and 60 controls.

Variable	Patients n=60	Controls n=60	p-value
Age in years, mean (SD)	54.0 (11.1)	54.2 (11.0)	0.943
Female sex; n (%)	53 (88.3)	51 (85.0)	0.591
Smoking			0.300
Never smoked, n (%)	27 (45.8)	30 (54.5)	
Exsmoker, n (%)	23 (39.0)	14 (25.5)	
Active smoker, n (%)	9 (15.3)	11 (20.0)	
BMI (kg/m ²), mean (SD)	28.0 (5.5)	27.3 (4.9)	0.540
MET-minute, median (IQR)	533.2 (605.1)	809 (716.9)	0.028
MEDAS, median (IQR)	9.4 (1.8)	9.1 (2.1)	0.349
Progression of RA, months, mean (SD)	119.7 (84.1-170.5)	-	-
Diagnostic delay, months, median (IQR)	5.7 (5.1-14.4)	-	-
Erosions, n (%)	25 (43.1)	0 (0.0)	<0.001
RF >10, n (%)	45 (75.0)	0 (0.0)	<0.001
ACPA >20, n (%)	48 (80.0)	0 (0.0)	<0.001
High-sensitivity CRP (mg/dl), median (IQR)	8.1 (4.2)	2.0 (4.5)	0.009
ESR (mm/h), median (IQR)	21.1 (16.6)	13.9 (12.3)	0.008
DAS28 at protocol, mean (SD)	3.1 (2.2-4.2)	-	-
Synthetic DMARDs, n (%)	52 (88.1)	-	-
Methotrexate, n (%)	36 (61.0)	-	-
Leflunomide, n (%)	6 (10.2)	-	-
Sulfasalazine, n (%)	7 (11.9)	-	-
Hydroxychloroquine, n (%)	4 (6.8)	-	-
Biologic DMARDs, n (%)	32 (54.2)	-	-
Anti TNF- α , n (%)	23 (39.0)	-	-
Jak inhibitor, n (%)	1 (1.7)	-	-
Anti-IL-6, n (%)	6 (10.2)	-	-
Abatacept, n (%)	1 (1.7)	-	-

Abbreviations: RA, rheumatoid arthritis; ACPA, anti-citrullinated peptide antibodies; RF, rheumatoid factor; SD, standard deviation; MEDAS: Mediterranean Diet Adherence Survey; DAS28, 28-joint Disease Activity Score; CRP, C-reactive protein; ESR, erythrocyte sedimentation rate; DMARD, disease-modifying antirheumatic drug; IL-6, interleukin 6; Anti TNF, anti-tumor necrosis factor.

Conclusion: In patients with well-controlled established RA, subclinical atherosclerosis is associated, in addition to sex, age, and mediterranean diet, with inflammatory activity and ACPA value.

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PREVALENCE OF BRONCHIECTASIS IN RHEUMATOID ARTHRITIS: A SYSTEMATIC REVIEW AND META-ANALYSIS

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Background: Bronchiectasis is a known extra-articular manifestation of rheumatoid arthritis (RA) and can lead to decreased quality of life as well as increased risk for infection and mortality. Understanding the burden of bronchiectasis in RA may lead to a better understanding of pathogenesis and improved management. We performed a systematic review and meta-analysis to determine the prevalence of bronchiectasis in RA.

Objectives: We investigated the prevalence of RA-related bronchiectasis (RA-BR) using a systematic review and meta-analysis.

Methods: We followed the PRISMA-P 2015 guideline for systematic reviews and registered this analysis (ID#199080) on PROSPERO. We queried PubMed and EMBASE databases using the search strategy "rheumatoid arthritis; AND; bronchiectasis" as of July 31, 2020. The inclusion and exclusion criteria were assessed for study eligibility by two independent abstractors. Exclusion criteria included: (1) non-primary literature (i.e., review articles, editorials); (2) case reports involving less than 5 patients; (3) published in a language other than English; (4) did not relate to both RA and bronchiectasis; and (5) studies not involving humans (e.g., mouse models). After the initial screen, we conducted a full text review to verify that inclusion criteria were met: (1) reported frequency of RA-BR and denominator of all RA patients in the study sample. Data including type of study design, method of RA-BR detection, and RA characteristics were extracted by two independent abstractors. We performed meta-analyses using random effects models to estimate prevalence of RA-BR among RA overall and restricted to retrospective or prospective studies.

Results: Out of a total of 208 studies, 37 studies were identified that reported frequency of RA-BR among RA. The included studies had heterogeneous methods to identify RA-BR that were based on either clinical or research chest computed tomography (CT) imaging and had varying methods to adjudicate images. Some studies focused on patients with respiratory symptoms or suspected RA-associated interstitial lung disease (RA-ILD). There were a total of 8,646 patients with RA, and 612 were identified as having RA-BR. The pooled overall prevalence of RA-BR in the random effects meta-analysis was 18.2% (95%CI 13.3-23.7%, Figure 1). Among prospective studies (n=24), the prevalence of RA-BR in the meta-analysis was 20.7% (95% CI 14.7-27.4%). Among retrospective studies (n=13) reporting RA-BR, the prevalence was 14.5% (95% CI 7.2-23.7%). Prevalence was lowest in retrospective studies where RA-BR was identified through clinical care (e.g., two large retrospective studies that investigated 4,000 and 1,129 RA patients reported RA-BR prevalence of 0.6% and 2.7%, respectively). The two largest prospective studies that incorporated a research protocol performing chest CT imaging on all enrolled patients investigated 150 and 332 patients with RA and reported a RA-BR prevalence of 8.0% and 9.6%, respectively. Smaller studies of both study design types generally reported higher prevalence of RA-BR.

Figure 1. Pooled prevalence of RA-related bronchiectasis in RA among all studies identified (n=37).