A Cross-Sectional Study of Rheumatoid Arthritis (RA) Diagnoses in Patients with Systemic Lupus Erythematosus (SLE)

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Background

Features of autoimmune conditions may coexist in individual patients, which may represent an overlapping single disease with features of both (i.e., 'rhupus'), or the presence of two distinct diseases. Rheumatoid arthritis (RA) and systemic lupus erythematosus (SLE) share some genetic etiologies and distinguishing between lupus arthropathy and RA features poses clinical challenges. Given the potential for drug-induced or exacerbation of SLE with some of the available biologic treatment options, understanding the benefit-risk scenarios in the context of real-world phenotypes is important.

Methods

The OM1 SLE Registry (OM1, Inc; Boston, MA) follows more than 46,900 SLE patients in the U.S. managed by rheumatologists longitudinally with deep clinical data, including laboratory, patient-reported and disease activity information, and linked administrative claims starting from 2013. Index date was set by the first registry encounter with an SLE diagnosis code and ≥18 months of baseline available. Potential RA comorbidity was defined as at least 2 outpatient RA diagnosis codes ≥365 days apart or inpatient RA codes. Other comorbidities were defined by the presence of at least 2 outpatient diagnosis codes ≥30 days apart or one inpatient diagnosis code prior to index. Obesity was defined as BMI ≥30 kg/m2. Medications were identified by prescriptions, administrations and/or fills. RAPID3 (Routine Assessment of Patient Index Data 3) at index date was also explored.

Results

- Study included 44,186 patients (92% female) from the OM1 SLE Registry, 2096 (4.7%) of whom met RA code criteria (Table 1)
- Over 93% of SLE-RA cohort patients had ≥1 RA diagnosis codes in at least 3 calendar years during follow-up (range 1 to 9 years) (Figure 1); all of these patients also had RA code(s) after diagnosis with SLE. Median (Q1, Q3) number of RA-related encounters during follow-up per patient was 24 (13, 38).

Figure 1. Years with RA encounters

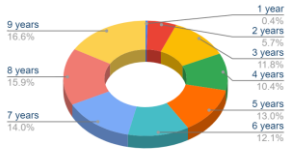

Table 1. Patient Characteristics

		SLE Registry Patients (N=44,186)	SLE Registry Patients with RA diagnosis codes (N=2,096)
Mean age (SD)		51 (15)	56 (14)
Female, n (%)		40,507 (92)	1,930 (92)
Race, n (%)	White	24,542 (56)	1267 (60)
	Black	8,318 (19)	349 (17)
	Asian	858 (2)	26 (1)
	Other	428 (1)	28 (1)
	Unknown	10,040 (23)	426 (20)
Ethnicity, n (%)	Hispanic	2,933 (7)	127 (6)
	Non-Hispanic	28,212 (64)	1480 (71)
	Unknown	13,041 (30)	489 (23)

- The SLE-RA cohort was older (56 versus 51 years), with a higher proportion of white and non-hispanic patients than the SLE patients overall
- Mean patient-reported joint-related disease activity was moderate (mean RAPID-3 = 4) across all patients
- Co-morbid autoimmune diseases (e.g., Sjögren's) and other comorbidities were more common in the SLE-RA cohort (Table 2)
- Recent treatment with systemic steroids, methotrexate, leflunomide and biologic DMARDs was more commonly seen in SLE-RA patients (Table 2)

References: Lockshin MD, Levine AB, Erkan D. Lupus Science & Medicine 2015;2:e000084. doi:10.1136/lupus-2015-000084; Icen M, Nicola PJ, Maradit-Kremers H, et al. Systemic lupus erythematosus features in rheumatoid arthritis and their effect on overall mortality. J Rheumatol. 2009;36(1):50-57. doi:10.3899/jrheum.080091

Table 2. Other Autoimmune Comorbidities & Recent Treatment History

	All SLE Registry Patients (N=44,186)	SLE Registry Patients with RA (N=2,096)
Other comorbid autoimmune conditions, n (%)		
Sjögrens	9,355 (21)	560 (27)
Autoimmune thyroiditis	1,910 (4)	96 (5)
Scleroderma	1,578 (4)	106 (5)
Dermatopolymyositis	843 (2)	40 (2)
Other comorbidities		
Hypertension	24,517 (55)	1,402 (67)
Obesity	17,508 (40)	917 (44)
Osteoporosis	9,078 (21)	744 (35)
T2DM	8,287 (19)	563 (27)
Cardiac arrhythmia	6,142 (14)	376 (18)
Recent treatment history (past 18 months), n (%)		
Systemic corticosteroids	22,158 (50)	1,377 (66)
Hydroxychloroquine	18,396 (42)	837 (40)
Methotrexate	2,885 (7)	460 (22)
Mycophenolate mofetil	2,567 (6)	86 (4)
Azathioprine	2,327 (5)	132 (6)
TNF-alpha inhibitors	1,194 (3)	450 (21)
Belimumab	1,203 (3)	45 (2)
Leflunomide	905 (2)	205 (10)
Rituximab	481 (1)	168 (8)
Sulfasalazine	447 (1)	75 (4)
Abatacept	342 (1)	159 (8)
JAK inhibitors	171 (<1)	79 (4)
Cyclophosphamide	124 (<1)	5 (<1)
Patient-reported RAPID3 (Routine Assessment of Patient Index Data 3, range 0-10)*		
Result available, n (%)	16,524 (37)	1,012 (48)
Mean score closest to index (SD)	4.0 (2.0)	4.0 (2.0)

Conclusion

RA diagnoses in patients within the SLE Registry was higher than expected based on the literature, although some similar patterns in demographic and treatment patterns were seen. Classification for this study was based upon clinical diagnosis in routine practice by a rheumatologist and ACR diagnostic criteria may or may not have been applied. Further research is needed to better understand the chronologic path of these conditions (or their features, such as arthropathy), relevant comorbidities (e.g., increased age and cardiovascular risk factors) and implications for treatment.