Myositis in Systemic Lupus Erythematosus: A Case-cohort Study

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BACKGROUND

- Myositis is not a well-known feature of SLE; this potentially disabling feature may be overlooked. No estimates of incidence exist.
- We determined myositis incidence in SLE, assessed demographic and clinical factors potentially associated with onset.

METHODS

- Consecutive unselected patients meeting ACR SLE criteria have been enrolled into the MUHC SLE cohort, with data collected each year.
- We assessed patients seen at least once between Jan 1, 2000 to June 30, 2018 for possible myositis.
- Potential myositis cases were identified with the SLICC Damage Index (SDI) item for muscle weakness/atrophy, and the SLEDAI-2K item for myositis. Cases confirmed via chart review, (expert assessment, EMGs, histology).
- Case-cohort analyses to evaluate potential associations of myositis incidence with clinical/demographic variables. Here, 20% (N=121) of the original cohort was randomly selected as control risk-sets for cases.
- Multivariable models were adjusted for age, race/ethnicity and sex.

RESULTS

- Out of 566 SLE patients, 11 myositis cases were identified, with an incidence of 2.1 events per 1000 person years
- There were more non-Caucasians in the myositis cases versus the non-myositis SLE controls (Table 1)
- Multivariate analyses revealed non-Caucasians and those with anti-Smith antibodies were more likely to develop myositis (Table 2)
- Strong trends also seen for higher HR with other antibodies and with Raynauds, and for lower HR for female sex, however 95% CIs were wide, precluding definitive conclusions

Table 1. Baseline characteristics of myositis and non-myositis SLE patients

Variables	Myositis (n=11)	Non-myositis (n=110)	Difference (95% CI)
Mean age (SD) at SLE diagnosis	29.1 (10.9)	32 (15.2)	1.95 (-5.90, 10.0)
Female sex, N (%)	9 (81.8)	102 (92.7)	0.12 (-0.04, 0.43)
Caucasian, N (%)	**2 (18.2)**	**72 (65.5)**	**0.16 (0.05, 0.30)**
Raynaud's, N (%)	8 (72.7)	47 (42.7)	-0.10 (-0.22, 0.01)
Nephritis, N (%)	5 (45.5)	40 (36.4)	-0.03 (-0.16, 0.07)
Antibodies, N (%)			
Anti-RNP	**8 (72.7)**	**46 (41.8)**	**-0.10 (-0.22, 0.00)**
Anti-Smith	**8 (72.7)**	**33 (30.0)**	**-0.16 (-0.30, -0.04)**
Anti-SSA	8 (72.7)	48 (43.6)	-0.10 (-0.22, 0.01)
Anti-DsDNA	8 (72.7)	60 (54.5)	-0.06 (-0.17, 0.05)

Table 2. Multivariate analysis: unadjusted and adjusted* hazard ratios (HR) for myositis in SLE

Variables	Unadjusted HR (95% CI)	Adjusted HR (95% CI)*
Female sex	0.17 (0.03, 1.04)	0.20 (0.03, 1.54)
Non-Caucasian	**7.93 (1.62, 38.9)**	**7.14 (1.44, 35.4)**
Age at SLE diagnosis	0.99 (0.94, 1.04)	0.98 (0.93, 1.03)
Raynaud's	2.73 (0.67, 11.0)	2.88 (0.66, 12.6)
ACR Nephritis	1.53 (0.43, 5.45)	0.96 (0.25, 3.79)
Anti-RNP	3.85 (0.94, 15.9)	2.81 (0.64, 12.3)
Anti-Smith	**6.44 (1.51, 27.5)**	**5.94 (1.29, 27.4)**
Anti-SSA	2.90 (0.72, 11.7)	2.68 (0.61, 11.7)
Anti-DsDNA	2.76 (0.65, 11.7)	2.53 (0.52, 12.2)

*Adjusted for age, race/ethnicity , sex.

CONCLUSIONS

- We are the first to establish myositis incidence in SLE: 2.1 events per 1000 person years
- Our multivariate analyses suggest that a cluster of variables, including non-Caucasian race, anti-Smith antibodies, and possibly other features, were associated with risk of developing myositis in SLE.
- This information may aid clinicians in identifying SLE patients most at risk for this important complication.
- Potential limitation: we only reviewed charts with relevant SDI and SLEDAI-2K positivity.
- Additional analyses are underway to assess myositis and ILD related antibodies

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Disclosures: None

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