**Clinical characteristics of Rheumatoid Arthritis patients with secondary Sjögren’s Syndrome and association with joint damage**

Lindsay E. Brown, MD, Michelle Frits, MS, Christine Iannaccone, MPH, Michael E. Weinblatt, MD, Nancy Shadick, MD, MPH, Katherine P. Liao, MD, MPH

**Background:**

Secondary Sjögren’s syndrome (sSS) is a common extra-articular manifestation of Rheumatoid Arthritis (RA) with a prevalence ranging from 7 to 50 percent. However, the clinical characteristics of this subgroup of patients are poorly well characterized. In addition, whether sSS is associated with worse outcomes such as joint damage remains unclear. This study aims to characterize sSS patients in an RA cohort and determine whether there is an association between sSS and worse joint damage.

**Methods:**

We conducted a cross-sectional study in an observational cohort of RA patients at a large academic center. We included all subjects with >=1 year of follow-up. Subjects were considered to have sSS if they were reported as having sSS by their rheumatologist at recruitment into the cohort (baseline) and had the diagnosis confirmed by chart review. Fifty subjects without sSS were also reviewed to determine the negative predictive value (NPV) of having no sSS reported at baseline. The primary outcome was Sharp scores associated with bilateral hand radiographs at baseline. We conducted univariate analyses on potential important clinical variables associated with sSS, e.g. age, gender, race, ACPA and RF positivity, methotrexate and anti-TNF use at baseline. We constructed a linear regression model to determine the association of sSS status and baseline Sharp score, adjusted by age, gender, RA disease duration and variables significant from the univariate analyses.

**Results:**

We studied 829 RA subjects, mean age 57 years, 83% female, mean RA duration 13 years, 63% ACPA positive; fifty-seven subjects (7%) had sSS (the NPV of not having sSS if not reported at baseline was 100%). We observed a female predominance of sSS, a significantly higher percentage of blacks, and higher DAS28-CRP at baseline among subjects with sSS (Table 1). Having sSS at baseline was significantly associated with higher Sharp scores (p=0.01), adjusted for age, gender, disease duration and variables significant from the univariate analyses (Table 2).

**Conclusions:**

In our RA cohort, sSS affected a significantly higher proportion of women and African-Americans than the overall cohort. Joint damage measured by Sharp scores was significantly worse in subjects with sSS, suggesting that aggressive therapy should be considered in RA patients with sSS.

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**Table 1.** Clinical characteristics of subjects with Secondary Sjogren’s Syndrome (sSS) in the RA cohort (n=829).

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| --- | --- | --- | --- |
| **Clinical characteristics** | **sSS, n=57**  **(6.9%)** | **No sSS, n=772 (93.1%)** | **p-value** |
| Age, mean yrs (SD) | 57.2 (10.5) | 56.9 (13.7) | 0.869 |
| Female gender (%) | 98.3 | 81.4 | 0.001 |
| Disease duration, mean yrs (SD) | 16.1 (10.8) | 13.5 (12.4) | 0.13 |
| Race (%) |  |  |  |
| Caucasian | 84.2 | 93.7 | 0.004 |
| African American | 10.5 | 3.8 | 0.02 |
| ACPA positive (%) | 70.4 | 61.7 | 0.20 |
| RF positive (%) | 80.0 | 62.1 | 0.008 |
| Baseline DAS28-CRP, mean (SD) | 4.36 (1.7) | 3.89 (1.6) | 0.03 |
| Baseline Sharp score, median (IQR) | 48.0 (82.0) | 17.0 (61.0) | 0.002 |
| Anti-TNF at baseline, % | 45.6 | 35.8 | 0.14 |
| MTX at baseline, % | 57.9 | 46.3 | 0.10 |

**Table 2.** Association between baseline sSS and baseline Sharp scores\*.

|  |  |  |
| --- | --- | --- |
| **Clinical variable** | **Beta coefficient (SE)** | **p-value** |
| Age | 0.02 (0.007) | 0.18 |
| Female gender | -0.13 (0.23) | 0.62 |
| Disease duration | 0.04 (0.007) | <.0001 |
| Black race | -0.78 (0.32) | 0.02 |
| RF positivity | 0.76 (0.19) | <.0001 |
| Baseline DAS28-CRP | 0.18 (0.05) | 0.0003 |
| **Presence of sSS** | **0.43 (0.43)** | **0.01** |

\*Sharp scores were non-normally distributed and were categorized into quintiles (Q1: <1, Q2: ≥1 and <10, Q3: ≥10 and <32.5, Q4: ≥32.5 and <81.5, Q5: ≥81.5 units)