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Correlation between Oxford grading of corneal staining score and sicca test included in ACR-EULAR 2016 classification criteria for Primary Sjögren Syndrome

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Background

Primary Sjögren's Syndrome (pSS) is an autoimmune disease characterized by dryness of mucous membranes, especially of the eyes and mouth, and by infiltration of the affected tissues by lymphocytes.

The Oxford grading scale (OGS) evaluates corneal damage that can be associated with dry eye disease. The measurement of the ocular surface damage is part of the ACR-EULAR 2016 classification criteria, using the Ocular Staining Score (OSS) or van Bijsterveld score (vBs). Although OGS is not considered within these criteria, this test could play a role in identifying patients with severe dryness during the pSS diagnostic process.

Objectives

To **explore the correlation** between the OGS and the Schirmer test in patients with pSS meeting ACR-EULAR 2016 classification criteria without OSS or vBs.

Explore the correlation with unstimulated (UWSF) and stimulated whole salivary flow (SWSF) with OGS.

Methods

Clinical data from patients included in Sjögren Syndrome and Atopic Dermatitis cohorts' generation and multi-omics characterization project (**SSAD project**) were analyzed.

Tests: For each patient, **Schirmer test**, **OGS test**, **UWSF** and **SWSF** were performed following standard protocols. **OGS** value was expressed as the sum of OGS of both eyes, and the result was considered pathological if it is different to zero. **Schirmer test** was considered pathological if ≤5 mm after 5 minutes, and its value was presented as the mean of both eyes. **UWSF and SWSF** were collected for 5 minutes and expressed in mL/min. UWSF was considered pathologic if ≤1mL/min.

Statistical analysis: Spearman correlation was used to analyze correlation between OGS and Schirmer test, OGS and UWSF and OGS and SWSF, using absolute values. Schirmer test and UWSF results were converted to dichotomic values (pathological vs. non-pathological), and a Chi squared test was performed with p-value obtained by Monte Carlo simulation.

Results

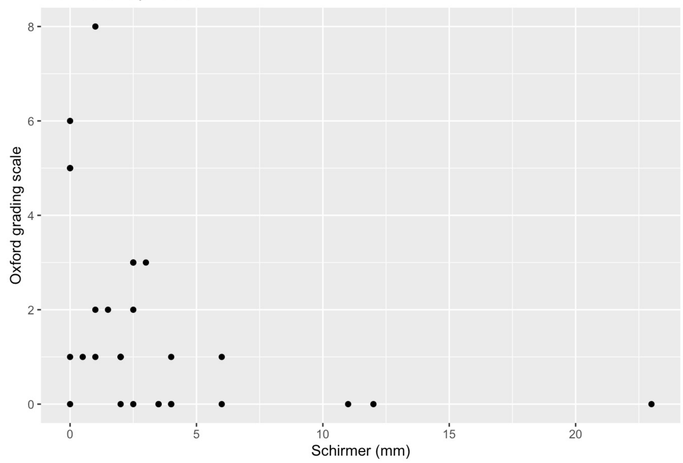
Twenty-four pSS patients meeting ACR-EULAR 2016 classification criteria were included in the analysis, with a total of **29 measures**. Five patients were evaluated twice with a span of at least 12 weeks between measures. Twenty-three patients were females (96%), with a mean age of 60.5 years.

All patients with a pathological OGS associated a pathological Schirmer test.
A negative correlation was found between both tests (a higher OGS was correlated with a lower Schirmer test result) with a rho value of -0.57 (p=0.0012) (figure 1).

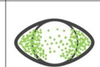
- Results were similar after considering only the baseline measure of each patient (rho value of -0.59, p=0.0025).
- Chi-square test confirmed this correlation when comparing pathological vs. non pathological results (p= 0.0399).

No significant correlation was found between OGS and UWSF or SWSF.

Figure 1: Correlation between OGS and Schirmer test



Oxford grading scale

Grade	Description	Scheme
0	Absent	
I	Minimal	
II	Mild	
III	Moderate	
IV	Marked	
V	Severe	> Grade IV

Conclusions

Alterations found by OGS correlated with a pathologic Schirmer test in pSS patients. Corneal damage found by OGS does not seem to be related with oral dryness measured by salivary flow. OGS could play a role in identifying patients with severe eye dryness during the pSS diagnostic process.

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