Ocular changes in patients with psoriasis

Dear Editor,

Psoriasis is a chronic inflammatory disease that may involve sites other than the skin.[1,2] A total of 58% to 67% of patients with psoriasis have ophthalmological changes, although its prevalence in some populations remains uncertain.[3,4] We aimed to evaluate the frequency and characteristics of ocular changes in psoriasis patients at a dermatology outpatient clinic in North-eastern Brazil.

Sixty-nine adult participants, 35 with psoriasis and 34 controls, were included. Diagnosis of psoriasis was confirmed by a dermatologist, based on clinical or histopathological features. Measurements of psoriasis severity scores were performed. The control group included patients who sought care for non-inflammatory skin diseases, such as skin checks or a prior history of skin cancer. Eligible participants from both groups were recruited in our dermatology clinics simultaneously. Consecutive psoriasis patients as well as controls, evaluated at their first appointment or follow-up, were offered to participate prior to asking about ocular complaints or knowing if they had established ophthalmological abnormalities.

All participants were evaluated by an ophthalmologist through contact tonometry, biomicroscopy, Schirmer test, Lissamine green test, and tear film breakup time. Schirmer test measures the aqueous deficiency of the tear film, which is useful in the evaluation of dry eye. The Lissamine green test helps detect damaged conjunctival cells. The tear film breakup time test evaluates the stability of the tear film, being more altered in shorter times.[4,5] Both eyes were evaluated, and the most affected were included in the analysis. Ophthalmic assessments with objective parameters minimised information bias. Ophthalmological findings were correlated with psoriasis severity, presence of psoriatic arthritis, and demographic and clinical characteristics.

After evaluating data distribution, analyses of categorical and continuous variables were performed, respectively, using Fisher's exact test and Student's t-test. A logistic regression was used to assess the effect of psoriasis on ocular changes, adjusting for age and dyslipidemia, variables with significant differences between groups. Data were analysed using SPSS, version 22.0 (IBM, Armonk, NY).

Clinical and demographic characteristics of psoriasis and control subjects are shown in Table 1. The mean age of psoriasis patients was slightly higher (47.2 years) than the control group (40.6 years), $P = 0.07$. Gender distribution was

Table 1: Clinical and demographic characteristics of patients with psoriasis and control subjects *

	Psoriasis, n = 35	Control, n = 34	P**
Demographic			
Age (years)	47.1 ± 12.8	40.6 ± 16.6	0.07
Male	15 (44.1%)	13 (38.2%)	0.81
Clinical			
Diabetes	6 (18.2%)	4 (11.8%)	0.51
Hypertension	10 (30.3%)	5 (14.7%)	0.15
Hyperlipidemia	8 (24.2%)	2 (5.9%)	0.05
Psoriasis characteristics			
Disease duration (years)	14.8 ± 11.5		
PASI	19.6 ± 17.4		
BSA	30.9 ± 26.7		
DLQI	7.8 ± 7.1		
Psoriatic arthritis	8 (24.2%)		
Facial lesions or pruritus	11 (33.3%)		
Psoriasis therapy			
Current topical steroids	17 (51.5%)		
Current topical steroids on the face	7 (21.2%)		
Current use of systemic therapy	18 (52.9%)		
Prior phototherapy	3 (8.6%)		
Prior systemic steroids	5 (15.2%)		
Ophthalmological history			
Any prior eye changes	9 (25.7%)	6 (17.6%)	0.56
Prior eye surgery	6 (17.1%)	3 (8.8%)	0.48
Prior cataract surgery	5 (14.3%)	1 (2.9%)	0.20
Lubricating eye drops use	6 (17.1%)	2 (5.9%)	0.26

*values are means ± standard deviation or number of patients (%).
** Comparison between psoriasis patients and controls, using Student's t-test or Fisher's exact test for continuous and categorical variables, respectively.
PASI: Psoriasis area severity index, BSA: Body surface area, DLQI: Dermatology life quality index

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similar between groups. Regarding evaluated comorbidities, there was a higher proportion of patients with dyslipidemia, hypertension, and diabetes in the psoriasis group.

In the psoriasis group, most patients had long disease duration and moderate to severe disease. More than half were using systemic therapy and a quarter had psoriatic arthritis. A few subjects reported previous treatment with systemic corticosteroids or phototherapy. One-third of the patients had facial psoriasis or pruritus, and 21% were using topical corticosteroids on the face.

There was a non-significant increase in the frequency of previous eye diseases and surgeries in the psoriasis group. Among the most common complaints, patients with psoriasis had a significantly higher frequency of foreign body sensation, ocular erythema, eyelid oedema, and a change in or blurred vision.

The main ocular findings in the psoriasis group were blepharitis, meibomian gland dysfunction, corneal opacities or inflammation, and lens changes [Table 2]. No subject had uveitis or intraocular hypertension. The frequency of psoriasis patients who presented changes in the Schirmer test, Lissamine green, or abnormal tear film breakup time (<10 seconds) was 34.3%, 11.4%, and 54.3%, respectively. However, this was not significantly different when compared with the control group. Multivariate analyses, including age and dyslipidemia, obtained similar results.

Table 2: Ophthalmological outcomes and symptoms

Ophthalmological Outcomes	**Psoriasis, n = 35**	**Control, n = 34**	**P****
Abnormal Schirmer's test (<10mm)	12 (34.3%)	12 (35.3%)	1.00
Lissamine green test	4 (11.4%)	7 (20.6%)	0.34
Abnormal TBUT test (<10 sec)	19 (54.3%)	14 (41.2%)	0.20
Short TBUT test (<5 sec)	8 (22.9%)	3 (8.8%)	0.19
Blepharitis	9 (25.7%)	1 (2.9%)	**0.01**
Meibomian gland dysfunction	8 (22.9%)	0	**0.005**
Corneal inflammation or opacities	5 (14.3%)	0	**0.05**
Current/resolved lens opacity	8 (22.9%)	1 (2.9%)	**0.03**
Uveitis	0	0	1.00
Intraocular Hypertension (>21mmHg)	0	0	1.00
Ophthalmological Symptoms*	**Psoriasis, n = 28**	**Control, n = 32**	**P****
Pain	7 (25.0%)	4 (12.5%)	0.32
Irritation/itching	12 (42.9%)	8 (25.0%)	0.18
Foreign body sensation	11 (39.3%)	3 (9.4%)	**0.01**
Dry eye sensation	7 (25.0%)	4 (12.5%)	0.32
Photophobia	13 (46.4%)	10 (31.2%)	0.29
Eyelid crusts/scales	0	0	1.00
Eyelid edema	4 (14.3%)	0	**0.04**
Red eye	14 (50.0%)	2 (5.9%)	**<0.001**
Periocular lesions	1 (3.6%)	0	0.45
Altered/blurred vision	11 (39.3%)	1 (2.9%)	**0.001**

*Values are numbers (%). The symptoms were questioned before the consultation with the ophthalmologist.
** Comparison between psoriasis patients and control subjects using Student's t-test or Fisher's exact test for continuous and categorical variables, respectively.
TBUT: Tear film breakup time

Among patients with psoriasis, patients with strongly abnormal tear film breakup time (<5 seconds) had significantly higher Psoriasis Area Severity Index (PASI) and Body Surface Area (BSA) (sensitivity analysis). There was no difference in the frequency of any ophthalmological outcome in patients with psoriatic arthritis. Although controversial, it has been suggested that some ocular findings may be associated with more severe disease (PASI or BSA).[3,6,7] We included many patients with moderate to severe psoriasis (71.4%), a higher proportion than prior similar studies.[3,4]

We found an increased frequency of blepharitis, meibomian gland dysfunction, corneal opacities or inflammation, and lens changes in the psoriasis group. These differences may be due to direct involvement by psoriasis or associated inflammation given its epithelial involvement. Current or prior therapies, such as the use of steroids, may also have a role. However, among the eight psoriasis patients that had prior or current lens changes, only two had a history of prior systemic steroids and none had current or prior phototherapy. There was no significant difference in tests assessing dry eyes between groups, which is consistent with prior studies.[5,6] Heterogeneity in the assessment of abnormal findings in dry eye syndrome results in low sensitivity and specificity for the Schirmer test, which may explain these results.[7] However, the greater severity of the skin disease was associated with less stability in the tear film of these patients.

Our study had some limitations, such as the small number of patients and controls. However, this did not preclude the detection of significant differences in ocular changes between groups. In addition, even though posterior segment eye diseases are rare and visual acuity impairment would not be directly related to psoriasis, testing visual acuity and dilated fundal examination would have made our ophthalmologic evaluation more complete.

Our findings suggest that, in patients with psoriasis, different parts of the eye may be affected. In the routine evaluation, the dermatologist should ask about ocular symptoms and systematically evaluate for the presence of overt ocular or eyelid changes. Routine periodic evaluation by an ophthalmologist should also be encouraged.

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