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BRIEF REPORT

Anxiety and Depression in Psoriatic Arthritis: A Cross Sectional Study in Brazilian Patients

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Abstract

Objectives: Comorbidities are common in psoriatic arthritis patients, including mood disorders. We aimed to study the prevalence of anxiety and depression in psoriatic arthritis patients from Brazil and its association with epidemiological, clinical and treatment data.

Methods: Fifty-four psoriatic arthritis patients were interviewed using Becks' anxiety inventory, CES-D (Center for Epidemiologic Studies Depression Scale) and the SF-12 (Short Form Health Survey). Simultaneously the disease activity was measured using ASDAS (Ankylosing Spondylitis Disease Activity Score)-ESR (erythrocyte sedimentation rate) and ASDAS-CRP (C reactive protein) for the joint domain and PASI (Psoriasis Area Severity Index) for the skin domain. Epidemiological, clinical and treatment data were obtained through chart review.

Results: Anxiety was found in 62.9% and depression in 51.8% of the sample. Anxiety correlated with ASDAS-ESR ($p = 0.003$), PASI ($p = 0.001$) and SF-12 ($P < 0.0001$). Depression correlated with PASI and SF-12 ($p < 0.0001$). All patients with depression also had anxiety. No associations were found with epidemiological data, treatment or psoriatic arthritis subset (all with $p > 0.05$).

Conclusion: There was a high frequency of anxiety and depression in this psoriatic arthritis sample that correlated with the degree of skin involvement and had a negative impact in quality of life. Anxiety also correlated with joint disease activity measured by ASDAS-ESR.

Keywords

Psoriatic arthritis, Depression, Anxiety, Disease activity

Introduction

Psoriasis is a chronic inflammatory disease that affects skin and may be complicated with psoriatic arthritis [1]. Psoriasis patients may be affected by several comorbidities other them arthritis, such as obesity, hypertension, dyslipidemia, diabetes mellitus and cardiovascular diseases [2]. There is also a known link between psoriasis and psychiatric disorders such as depression, anxiety and even risk of suicide [3,4]. Patient's age and disease severity seem to be closely linked to psychological distress in this context [3]. Although the reason for this association is not completely understood some of the proposed mechanisms are the problems associated with outward appearance [5], and the immune mechanisms connected to the activities of pro-inflammatory cytokines [6]. Psoriatic patients with associated arthritis may suffer from joint pain and functional impairment that may further aggravate this problem [7].

It is important to identify psoriasis patients with high risk for depression and anxiety in order to treat them early to improve their quality of life and to hinder the consequences of this psychiatric burden.

In this study we aimed to know the prevalence of depression and anxiety in a sample of Brazilian patients with psoriatic arthritis and the possible relationship of these symptoms with skin and joint disease activity as well as to know their influence in patients' quality of life.

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Methods

This is a cross-sectional observational study that included 54 patients with psoriatic arthritis that fulfilled the CASPAR classification criteria for this disease [8]. This convenience sample included all psoriatic arthritis patients that came for regular consultation during a six months period, in a single Rheumatology Unit and agreed to participate in the study. All patients were users of the SUS (Sistema Único de Saúde) that is a national system that provides health coverage for low-income individuals in Brazil.

This study was approved by the local Committee of Ethics in Research, protocol number 2.952.840 and all participants signed consent.

Collection of epidemiological data, subset of psoriatic arthritis, and treatment was done through chart review and upon direct questioning. Articular disease activity was evaluated by ASDAS (Ankylosing Spondylitis Disease Activity Score)-ESR (erythrocyte sedimentation rate) [9] and ASDAS-CRP (C reactive protein) [9] and of the skin by PASI (Psoriasis Area Severity Index) [10]. Simultaneously, patients answered the Beck anxiety inventory [11], the CES-D (Center for Epidemiologic Studies Depression Scale) [12] and the SF-12 (Short Form Health Survey with 12 questions) [13].

ASDAS-CRP and ASDAS-ESR are scales of disease activity index that take into account the duration of morning stiffness, patient's global assessment of disease activity, peripheral pain/swelling and the ESR or CRP. Patients with ASDAS-ESR and ASDAS-CRP ≤ 1.3 are considered to have inactive disease. Values between ≥ 1.3 and < 2.1; between ≥ 2.1 and < 3.5; and ≥ 3.5 were considered as with low, high and very high disease activity respectively [9].

PASI is an index used to measure the severity of psoriasis; it associates the severity of the skin lesion (erythema, induration and desquamation) and percentage of affected area [10].

The Beck anxiety inventory contains 21 questions recorded on a scale value of 0 (not at all) to 3 (severely). Higher total scores show more severe anxiety symptoms. The cutoffs are: 0-7: minimal anxiety; 8-15: mild anxiety; 16-25: moderate anxiety; 26-63: severe anxiety [11].

The CES-D is a self-reported questionnaire to evaluate depression with twenty questions that ranges from 0 to 60, with the high scores indicating the presence of more symptomatology. Values between 15-21 are suggestive of mild to moderate depression and over 21, major depression [12].

SF-12 is a questionnaire with 12 items that evaluates the physical and mental domains of quality of life that goes from 0 to 100; high values are associated with better quality of life [13].

Frequency was expressed in percentages. Numerical data distribution was studied by Shapiro Wilk's test and central tendency of parametric data was expressed as mean and standard deviation (SD) and of non-parametric data as median and interquartile range (IQR). Patients with and without depression, and with and without anxiety were compared using Fisher's and chi-squared tests for nominal data and Mann Whitney's or unpaired t test for numeric data. Correlation studies of PASI and ASDAS with depression and anxiety were done by Spearman's test. The software used was GraphPad Prism 6.0 (San Diego, California, USA). The significance adopted was 5%.

Table 1: Descriptive study of 54 psoriatic arthritis patients.

	N or central tendency
Females/males	28/26 or 51.8%/48.1%
Ethnic background	
Caucasians	52/54 - 96.2%
Afro descendants	2/54 - 3.7%
Mean age (years) ± SD	53.6 ± 11.0
Tobacco exposure (current and ex)	28/54 - 51.8%
Psoriatic arthritis subset (*)	
Oligoarticular	30/54 - 55.5%
Polyarticular	14/54 - 25.9%
Axial	24/54 - 44.4%
Distal interphalangeal-	5/54 - 9.2%
Median Psoriatic arthritis duration (years) (IQR)	4.0 (1.5-12.0)
Median psoriasis duration (years) (IQR)	11.0 (7.0-24.0)
Median PASI (IQR)	1.0 (0-4.8)
Mean ASDAS-ESR ± SD	3.16 ± 1.23
Mean ASDAS-CRP ± SD	3.50 ± 1.47
Median ESR (mm) (IQR)	26 (10-47)
Median CRP (mg/dL)	4.7 (2.0-8.2)
Treatment	
Methotrexate	28/54 - 51.8%
Leflunomide	11/54 - 20.3%
Anti TNF-alpha	18/54 - 33.3%
Secuquinumab	5/54 - 9.2%
Ustequinumab	1/54 - 1.8%

(*)- 35 patients had combined forms.

SD: Standard Deviation; IQR: Interquartile Range; ASDAS: Ankylosing Spondylitis Disease Activity Score; ESR: Erythrocyte Sedimentation Rate; CRP: C Reactive Protein; PASI: Psoriasis Area Severity Index; TNF: Tumoral Necrosis Factor

Results

Descriptive study of studied sample

The main epidemiological, clinical and treatment data are on Table 1. In this sample the median Beck inventory was of 14 (IQR = 7.0-25.2): minimal anxiety

Table 2: Comparison of epidemiological, clinical and treatment data in psoriatic arthritis patients with and without anxiety and correlation of anxiety with quality of life, depression, age, disease duration and activity indexes.

COMPARISON STUDIES			
	With anxiety N = 34 (62.9%)	**Without anxiety N = 20 (37.0%)**	**P**
Females/Males	18/16	9/11	0.57
Tobacco exposure	20 (58.8%)	7 (35%)	0.09
Arthritis subset			0.67
Polyarthritis	11 (32.2%)	3 (15%)	
Oligoarthritis	18 (52.9%)	12 (80%)	
Axial	16 (47.0%)	8 (40%)	
Distal interphalangeal	3 (6.7%)	2 (10%)	
Treatment			
DMARDs (Methotrexate + leflunomide)	22 (64.7%)	12 (60%)	0.72
Anti-TNF-alpha	13 (38.2%)	5 (25%)	0.38
CORRELATION STUDIES OF BECK ANXIETY INVENTORY RESULTS:			
	Rho	**95% Confidence interval**	**P**
Age	0.05	-022 to +0.32	0.70
Arthritis duration	-0.23	-0.48 to +0.04	0.09
Psoriasis duration	-0.02	-0.30 to +0.25	0.85
PASI	0.42	+0.16 to +0.62	**0.001**
ASDAS -ESR	0.39	+0.13 to 0.60	**0.003**
ASDAS-CRP	0.25	-0.02 to 0.49	0.06
CRP	-0.04	-0.31 to +0.24	0.77
ESR	0.22	-0.55 to +0.47	0.09
CES-D	0.80	+0.68 to +0.88	**< 0.0001**
SF-12 (physical domain)	-0.60	-0.75 to -0.39	**< 0.0001**
SF-12 (mental domain)	-0.70	-0.82 to -0.53	**< 0.0001**

DMARDs: Disease Modifying Rheumatic Drugs; PASI: Psoriasis Area Severity Index; ASDAS: Ankylosing Spondylitis Disease Score; ESR: Erythrocyte Sedimentation Rate; CRP: C Reactive Protein; CES-D: Center for Epidemiological Studies Depression scale; SF-12: Short Form health survey with 12 questions

was found in 20/54 (37.0%), light anxiety in 17/54 (31.4%), moderate in 9/54 (16.6%) and severe in 8/54 (15.6%). The median CES-D was 18.5 (IQR = 5.0-29.0) and 4/54 had minor depression and 24/54 had major depression. In 28/54 (51.5%) an association of anxiety and depression was seen.

The median SF-12 mental domain was 50.0 (IQR = 36.2-58.1) and the physical of 35.4 (IQR = 27.8-46.9).

Study of anxiety

Table 2 shows the comparison of patients with light, moderate and severe anxiety with those with minimal anxiety.

Study on depression

The comparison of psoriatic arthritis patients with (any degree) and without depression and the correlation of CES-D results with age, disease duration, PASI e inflammatory indexes is on Table 3.

Discussion

The results of the present study showed that psoriatic arthritis patients had a high level of anxiety that appeared in almost 2/3 of them and depression that affects almost half of the sample. It also showed that anxiety correlates with joint and skin disease activity and depression with skin but not joint activity although a tendency was observed in the study of this latter association. Both affected negatively the patient's quality of life.

Our results on depression are higher than those found by Kotsis, et al. [14] that analyzed 83 patients from Greece and found a prevalence of 36.7% in those with the polyarticular form, being even lower in the other subsets of the arthritis. In addition, Mc Donough, et al. [15] detected a prevalence of 22.2% of depression and 36.6% of anxiety in their sample of Canadian individuals. These later authors also observed that depression was associated with unemployment, female sex and higher actively inflamed joint count. Our sample is from third world individuals with low income that have difficulties in access to medical care and treatment as well as problems to keep a job if they have physical limitations.

Table 3: Comparison of epidemiological, clinical and treatment data in psoriatic arthritis patients with and without depression and correlation of depression with quality of life, age, disease duration and activity indexes.

COMPARISON STUDIES			
	With depression n = 28 (51.8%)	**Without depression n = 26 (48.1%)**	**P**
Females/Males	15/13	12/14	0.58
Tobacco exposure	15 (53.3%)	13	0.79
Polyarthritis	10 (35.7%)	4 (15.3%)	0.42
Oligoarthritis	14 (50%)	16 (61.5%)	
Axial	12 (42.8%)	12 (46.1%)	
Distal interphalangeal	2 (7.1%)	3 (11.5%)	
Treatment			
DMARDs (Methotrexate + leflunomide)	18 (64.2%)	16 (61.5%)	0.83
Anti-TNF-alpha	9 (32.1%)	9 (34.6%)	0.84
CORRELATION STUDIES OF CES-D QUESTIONNAIRE RESULTS			
	Rho	**95% Confidence interval**	**P**
Age	0.18	-0.09 to 0.43	0.18
Arthritis duration	-0.008	-0.28 to +0.27	0.95
Psoriasis duration	-0.004	-0.32 to +0.23	0.73
PASI	0.50	+0.27 to +0.68	**< 0.0001**
ASDAS -ESR	0.26	-0.01 to +0.50	**0.057**
ASDAS-CRP	0.17	-0.10 to +0.43	0.20
CRP	-0.04	-0.32 to +0.23	0.73
ESR	0,14	-0.14 to 0.40	0.31
SF-12 (physical domain)	-0.55	-0.71 TO -0.32	**< 0.0001**
SF-12 (mental domain)	-0.80	-0.88 to -0.68	**< 0.0001**

DMARDs: Disease Modifying Rheumatic Drugs; PASI: Psoriasis Area Severity Index; ASDAS: Ankylosing Spondylitis Disease Score; ESR: Erythrocyte Sedimentation Rate; CRP: C Reactive Protein; SF-12: Short Form health survey with 12 questions; CES-D: Center for Epidemiologic Studies Depression scale

This may have contributed to higher levels of depression and anxiety in our sample.

It was also found, presently, that both anxiety and depression were associated with the severity of skin involvement. The cosmetic concerns resulting from the psoriasis lesion, a skin disease that affects visible areas of the body, has been associated with embarrassment, shame, and felling of rejection [16] and that this psychosocial burden disturbs the patient's quality of life [16]. A multicentric study of 1485 patients showed that individuals with psoriasis have a high rate of internalized stigma. Internalized stigma refers to the perception of being stigmatized by the society even though this might not happen [17]. Internalized stigma favors patient withdraw from social life because he or she assumes that other people have a negative response to its skin lesions and ends up with isolation, unemployment, anxiety and depression [17]. In this same study internalized stigma was associated with the degree of skin involvement. The co-occurrence of arthritis in these patients may be associated with pain, stiffness, fatigue and limitation in daily activities that offer additional problems to the patients and may further aggravate the psychological burden. Husted, et al. [7] reported that patients with psoriatic arthritis have more pain and described more role restrictions due to psychological problems than those of rheumatoid arthritis.

Proinflammatory cytokines may play a double role in this context. While the worsening of skin and of the articular disease are associated with increased inflammation in both domains, the presence of anxiety and depression are also linked to inflammation [18]. IL (interleukin)-6 e TNF-a (tumor necrosis factor alpha) have been found to be elevated in depressed subjects when compared to nondepressed individuals [18]. Also, inflammatory biomarkers such as C-reactive protein (CRP) are augmented in depressed persons as described in at least two metanalysis [19,20]. So, a vicious cycle involving psoriatic arthritis and mood disorders, may be favored by the underlying inflammatory milieu. The use of anti TNF-a and cyclooxygenase 2 blockers have been associated with improvement of depressive symptoms in patients with psoriasis and other chronic illnesses [18,21]. We could not prove such association but our sample was small, with only one third of subjects using anti TNF-α, and could not have had enough strength to show these differences.

All patients with depression also have anxiety and this combination have been found to have poorer outcomes when compared to the presence of just one mood disorder [22]. According to some authors [23], the state of hypervigilance seen in anxiety might be part of the 'pathogen host defense hypotheses, where the stressors trigger an inflammatory state favoring the subsequent appearance of depression. Such patterns of depression could be important from the evolutionary point of view as they would provide protection from exposure to predators [22]. Nevertheless, the combination of anxiety and depression is associated with raising in suicidal ideation, worsening response to treatment, increasing deficits in the activation of working memory and also with more dysfunctions in hypothalamic-pituitary-adrenal axis when compared to isolated depression [22].

This work has several limitations: The small number of patients and its transversal design are some of them. Not having a control sample is another. However, it does highlight the high frequency of mood disorders in psoriatic arthritis patients and its repercussions in the patient's quality of life. The attending physicians should be aware of these relationships in order to provide a good care for individuals with psoriatic arthritis.

Summarizing, the present analysis showed a high frequency of anxiety and depression in Psoriatic arthritis patients in a series of Brazilian patients. Anxiety showed correlation with skin and articular activity indexes while depression correlated with the degree of skin involvement. Both anxiety and depression are associated with loss of quality of life.

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Disclosure

None.

Conflict of Interest

None.

Author Contributions

LMC, APBC, JS and TS conceived and carried out the study; RN and TS organized and analyzed data. All authors were involved in writing the paper and had final approval of the submitted and published versions.

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