

Prevalence of Inflammatory Back Pain and Sacroiliitis in Patients with Psoriatic Arthritis

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Abstract

Aim: The aim of the study was to determine the prevalence of inflammatory back pain and sacroiliitis in patients with psoriatic arthritis.

Materials and methods: Forty-two patients who diagnosed with psoriatic arthritis in Physical Therapy and Rehabilitation outpatient clinic were included in the study. Patients were questioned for inflammatory back pain by a physiatrist according to the Assessment of SpondyloArthritis International Society (ASAS) criteria. Disease duration, and laboratory parameters of erythrocyte sedimentation rate (ESR) and C-reactive protein (CRP) levels were evaluated for all patients. Magnetic Resonance Imaging (MRI) of the sacroiliac joints was performed to identify sacroiliac joint involvement.

Results: Patients had a mean age of 44.14 ± 10.1 years and mean disease duration of 17.97 ± 8.2 years. Inflammatory back pain was found in 33.3% of the patients. Sacroiliac MR Images demonstrated sacroiliitis in 52.3% of the patients. Of 22 patients with sacroiliitis, 9 had inflammatory low back pain (40.9%). Patients with MRI-detected sacroiliitis showed significantly higher ESR and CRP levels and longer disease duration.

Conclusion: With this study, we found that sacroiliac joint involvement was common in patients diagnosed with psoriatic arthritis and this was correlated with longer disease duration and higher CRP levels.

Keywords: low back pain • psoriatic arthritis • sacroiliitis

Introduction

Psoriatic arthritis (PsA) is a chronic, inflammatory, destructive arthritis associated with psoriasis. Psoriatic arthritis affects 7-40% of patients with psoriasis. The clinical spectrum of PsA includes peripheral arthritis, enthesitis, dactylitis, nail involvement, spondylitis or sacroiliitis [1-4]. Sacroiliitis has a variable incidence among PsA patients, ranging from 25% to 70% across studies [3,5]. The presence of inflammatory back pain raises the suspicion for axial involvement or sacroiliitis in PsA patients. However, since inflammatory back pain occurs infrequently and most patients are asymptomatic, it is difficult to diagnose this condition in PsA patients. Sacroiliac joint involvement in psoriatic arthritis may be unilateral or bilateral [3,6]. The ASAS (Assessment of SpondyloArthritis International Society) guidelines on spondyloarthropathies recommend the use of radiography and magnetic resonance imaging (MRI) for the diagnosis of sacroiliitis [7]. At its 2010 meeting, the Group for Research and Assessment of Psoriasis and Psoriatic Arthritis (GRAPPA) recommended that patients with psoriasis should be evaluated for the presence of sacroiliitis and spondylitis [8]. Due to its high sensitivity in the

assessment of axial skeleton, MRI is important for detection of changes associated with acute and chronic sacroiliitis [3].

In the present study, we aimed to determine the frequency of inflammatory back pain and sacroiliitis in patients diagnosed with psoriatic arthritis.

Materials and Methods

Patients who diagnosed with psoriatic arthritis in Physical Therapy and Rehabilitation outpatient clinic between the ages of 18 and 65 were included in the study. Those with a history of systemic rheumatic disease that could cause inflammatory low back pain and those with prior surgery to the lumbar spine were excluded. The demographic characteristics of the patients, duration of psoriasis and the nature of low back pain were questioned by a physiatrist at the Physical Therapy and Rehabilitation Clinic. The ASAS criteria were used for the diagnosis of inflammatory low back pain. Accordingly, inflammatory back pain is diagnosed when all 4 criteria are met including (1) back pain starting at an age of less than 40 years, (2) insidious onset, (3) Improvement with exercise but not with rest and (4) pain at night [9]. Among laboratory parameters, erythrocyte sedimentation rate (ESR) and C-reactive protein (CRP) levels were evaluated. Ethics approval was obtained from the institutional review board and all patients gave written informed consent.

MRI of the sacroiliac joints was obtained for all patients to examine joint involvement. Sacroiliac MR Images acquired at semi coronal T1-weighted and STIR sequences in oblique plane were evaluated by the same radiologist. Subchondral hyper intensity on STIR sequence and hypo intensity on T1W sequence were defined as bone marrow edema and inflammation [6,7]. Patients with these findings on MR images were identified as having sacroiliitis.

Statistical analysis was performed using the IBM SPSS software, version 21.0. Values were expressed as mean \pm standard deviation (mean \pm SD), and percentage (%). Whether the data followed a normal distribution was checked using the Kolmogorov-Smirnov test. Statistical differences were compared between the groups using the Chi-Square test for qualitative data and Independent t-test for quantitative data. A $p < 0.05$ was considered statistically significant.

Results

A total of 42 patients with psoriatic arthritis were included in the study, of whom 32 were female and 10 were male. Patients had a mean age of 44.14 ± 10.1 years and mean disease duration of 17.97 ± 8.2 years. Demographic characteristics and laboratory values of the patients are shown in Table 1.

Table 1. Demographic and clinical characteristics of patients

Characteristics	Range
Age, years	44,14 \pm 10,1
Sex (%)	ator
Female	32 (%76,2)
Male	10 (%23,8)
Disease duration, years	17,97 \pm 8,2
ESR (mm/h)	17,07 \pm 10,7
CRP (mg/L)	11,42 \pm 10,6
Inflammatory back pain (%)	14(%33,3)

ESR:Erythrocyte sedimentation rate

CRP: C-reactive protein

We identified inflammatory back pain in 14 of 42 patients (33.3%). Sacroiliac MR Images demonstrated sacroiliitis in 22 patients (52.3%). Of 22 patients with sacroiliitis, 9 had inflammatory low back pain (40.9%).

Patients with or without sacroiliitis were compared. The disease duration, ESR and CRP values were higher in patients with sacroiliitis than in patients without sacroiliitis and the difference was statistically significant ($p < 0.05$). The study groups did not differ significantly in terms of sex, age and the presence of inflammatory back pain ($p > 0.05$). Comparisons between the groups are shown in Table 2.

Table 2. Clinical and laboratory findings of patients with and without sacroiliitis

Characteristics	With sacroiliitis (n=22)	Without sacroiliitis (n=20)	p value
Age, years	43,95 ± 9,4	44,35 ± 10,8	0.9
Sex (%)			0.7
Female	16(%72,7)	16(%80)	
Male	6(%27,3)	4(%20)	
Disease duration,years	20,59 ± 8,2	15,10 ± 7,4	0.02
ESR (mm/h)	20,27 ± 12,2	13,55 ± 7,6	0.04
CRP (mg/L)	14,21 ± 7,8	6,64 ± 3,5	0
Inflammatory back pain(%)			0.3
Positive	9(%40,9)	5(%25)	
Negative	13(%59,1)	15(%75)	
ESR:Erythrocyte sedimentation rate			
CRP: C-reactive protein			

Discussion

In the current study, we detected inflammatory back pain 33.3% and sacroiliitis in 52.3% of the patients with psoriatic arthritis.

Although it has been reported that distal interphalangeal joints are most commonly affected in patients with psoriatic arthritis, sacroiliac joint involvement also occurs frequently. In patients with psoriasis, sacroiliitis can cause typical inflammatory back pain but most patients remain asymptomatic [10,11]. In our study, 33.3% of the patients were found to have inflammatory back pain and sacroiliitis was detected by sacroiliac MRI in 52.3% of the patients. Among patients with sacroiliitis findings on MRI, 40.9% had inflammatory back pain. Since sacroiliitis may not cause any symptoms, a thorough assessment for sacroiliitis should be performed in patients with psoriasis. Axial involvement without sacroiliitis is rare in psoriasis patients. Psoriatic arthritis has a chronic progressive course in the majority of patients. Over time, patients experience progression of clinical damage, increased deformities and restrictions in the activities of daily living. Therefore, early diagnosis and management of sacroiliitis are crucial [11,12].

Currently, conventional radiography is used as the initial imaging method for the diagnosis of sacroiliitis in routine practice in many centers. However, it may take 1 to 9 years from the onset of clinical symptoms until sacroiliitis becomes radiographically apparent. MR imaging is the only modality that shows the complex anatomy and changes in the bone marrow and cartilage in detail, and has a high sensitivity in the diagnosis of active and early sacroiliitis [3,8,9]. Studies have shown that MR imaging has superior sensitivity and specificity compared to conventional radiography, bone scintigraphy and computed tomography [3,6,13]. In

one study, Williamson et al. detected sacroiliitis on MR imaging in 38% of PsA patients without clinical inflammatory low back pain or positive sacroiliac provocation/stress tests [14]. In a separate study, Braga et al. demonstrated sacroiliitis on sacroiliac MR imaging in 37.8% of patients with psoriatic arthritis. They reported that patients with sacroiliitis had longer disease duration and higher CRP levels [3]. In another study, Furer et al. detected radiographic sacroiliitis in 28.7% of patients with psoriatic arthritis (15). Taken together, published studies show that the mean prevalence of sacroiliitis varies from 25% to 70% in PsA patients. The prevalence of sacroiliitis found in the present study is consistent with the data reported in the literature. Also, the disease duration was longer and CRP levels were higher in patients with MRI-detected sacroiliitis, which is in line with the findings reported by Braga et al.

A limitation of our study was that we did not evaluate other manifestations of the disease such as peripheral arthritis, nail involvement and skin lesions that could be present in the study patients. Further studies on a larger sample are needed to investigate the association of concomitant skin and articular manifestations with sacroiliac involvement.

Conclusion

With this study, we found that sacroiliac joint involvement was common in a population of patients with psoriatic arthritis and this was correlated with longer disease duration and higher CRP levels. Moreover, we observed that sacroiliac joint involvement was common even when patients did not complain of back pain. We think that sacroiliac MR imaging is warranted for early diagnosis and management of sacroiliitis in patients with psoriatic arthritis with elevated CRP levels even in the absence of clinical symptoms.

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