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ORIGINAL ARTICLE

Demographic, clinical and radiological characteristics of seronegative spondyloarthritis Egyptian patients: A rheumatology clinic experience in Mansoura

Adel Abdelsalam [a], Samar Tharwat [a,*], Marwa Abo Almauty [a], Amira F. Barakat [a], Asmaa Farouk Enein [a], Noha Abdelsalam [a], Mahmoud Awad [b], Dina Shahin [a]

[a] *Rheumatology and Immunology Unit, Internal Medicine Department, Faculty of Medicine, Mansoura University, Egypt*
[b] *Internal Medicine Department, Faculty of Medicine, Mansoura University, Egypt*

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KEYWORDS

Spondyloarthritis;
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Enteropathic arthritis;
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Abstract *Introduction:* Seronegative spondyloarthritis (SpA) is a group of chronic potentially disabling diseases that affect mainly axial joints in addition to extra-articular manifestations such as enthesitis, dactylitis and uveitis.

Aim of the work: To assess the demographic features, clinical manifestations and radiological findings of SpA in Egyptian patients.

Patients and methods: Fifty-three SpA patients were recruited from the Rheumatology and Immunology Unit of Mansoura University Hospital. Demographic, clinical and therapeutic data were collected. Skin was carefully assessed for psoriasis. Erythrocyte sedimentation rate (ESR) and C-reactive protein (CRP) were measured. All patients were evaluated by conventional radiographs of hands, knees, ankles, sacroiliac joints (SIJ) and lumbosacral spines in addition to magnetic resonance imaging (MRI) of the SIJs.

Results: Ankylosing spondylitis (AS) was the most prevalent (55%) followed by psoriatic arthritis (PsA) (38%) and 2 patients had enteropathic arthritis, one had reactive arthritis and another had undifferentiated SpA. The mean age of the patients was 39 ± 10.8 years; disease duration was 10 ± 3.5 years with a male predominance (58%). Inflammatory low back pain was present in all the patients and 77.4% had both axial and peripheral arthritis. Extra-articular manifestations as enthesitis, bursitis and dactylitis were detected in only 9.4% of patients. Sacroiliitis was detected in 81.1% of patients using conventional radiographs. MRI detected bone marrow edema in 9.4%, narrowing in 11.3%, sclerosis in 17% and ankylosis in 52.8%.

* Corresponding author at: Rheumatology and Immunology Unit, Mansoura University Hospital, El Gomhoria Street, Mansoura 35516, Egypt. Fax: +20 (50) 239733/2397900.
E-mail address: samartharwat2000@yahoo.com (S. Tharwat).

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Conclusion: The demographic, clinical and radiological characteristics of Egyptian SpA patients are comparable to those from other countries except for the lower prevalence of extra-articular manifestations.

1. Introduction

Seronegative spondyloarthritis (SpA) is a group of chronic inflammatory rheumatic diseases that affect the axial and/or peripheral joints [1]. The disease is usually seen between second and fourth decades of life [2]. The incidence of SpA varies, depending on the examined populations, from 0.2% to 1.9% [3]. Males are more affected than females. Apart from genetic factors, environmental factors also seem to play a role in the multifactorial causes of SpA. These diseases all share a common clinical pattern and pathophysiological mechanisms [4]. Sacroiliitis is the hallmark of the disease [5], however, enthesitis, dactylitis and uveitis are also common features of SpA [6]. Seronegative SpA diseases include ankylosing spondylitis (AS), psoriatic arthritis (PsA), reactive arthritis (ReA), and enteropathic arthritis (EntA) for those associated with inflammatory bowel disease (IBD) and undifferentiated spondyloarthritis (uSpA) [7]. Generally there is good symptomatic response to anti-inflammatory doses of nonsteroidal antiinflammatory drugs (NSAIDs) [8].

There is a growing interest in early diagnosis for patients with SpA which is a disease condition defined by a combination of symptoms and signs. Multiple imaging modalities including conventional radiography, magnetic resonance imaging (MRI) and ultrasonography (US) are available for evaluation of SpA [9]. The spectrum of joint involvement should not be limited to sacroiliitis and subclinical peripheral arthritis has also been reported in Egyptian SpA patients [10]. Subclinical arthritis was frequently found in patients with psoriasis by MRI [11].

Quite recently, considerable attention has been paid to evaluate the epidemiological distribution and clinical features of seronegative SpA. However, this issue has not been sufficiently studied in Egypt. In this article we present the demographic, clinical and radiological characteristics as well as the therapeutic profile of seronegative SpA patients attending the Rheumatology clinic and unit of the Mansoura University Hospital in Egypt.

2. Patients and methods

In this cross-sectional observational study, 53 consecutive patients with SpA were recruited from the Rheumatology and Immunology Unit of Mansoura University Hospital. Written informed consent was obtained from all patients after informing them about the study purposes. The study was approved by the ethics committee of the Mansoura University.

The diagnosis of seronegative SpA was confirmed according to Assessment of SpondyloArthritis international Society (ASAS) endorsed criteria for classifying patients with axial [12] and peripheral SpA [13] as well as CASPAR criteria for PsA [14]. Any patient with overlap with other rheumatic diseases was excluded. Demographic data were collected including age, sex and socioeconomic status. Disease duration was recorded and clinical data were evaluated including the presence of inflammatory low back pain (ILBP) at the onset of the disease. Axial or peripheral joints involvement was determined and any associated periarticular manifestations like enthesitis and bursitis were also evaluated. Toes and fingers were carefully examined searching for any signs of acute or chronic dactylitis. Skin was carefully assessed searching for any psoriatic skin lesions. Additionally, detailed information was obtained regarding history of diabetes mellitus, hypertension, past history of uveitis and family history of seronegative SpA.

The erythrocyte sedimentation rate (ESR) and C-reactive protein (CRP) were recorded. Descriptive therapeutic history including NSAIDs, local and systemic steroids, conventional and biological disease modifying antirheumatic drugs (DMARDs) was obtained. All patients were evaluated by conventional radiographs of hands, knees, ankles, sacroiliac joints (SIJ) and lumbosacral spines in addition to MRI of the SIJs. In AS patients, disease activity was assessed using the Bath ankylosing spondylitis disease activity index (BASDAI) [15].

Statistical analysis: Statistical Package for Social Science (SPSS) program version 15 was used for an analysis of data. Data were summarized using mean and standard deviation (mean ± SD) for quantitative and numbers and percentages for categorical variables. p-Value < 0.05 was considered significant.

3. Results

A total of 53 SpA patients were included, which accounted for 0.8% of patients attending the Rheumatology clinic and unit. Of them, 29 (55%) were AS, 20 (38%) were PsA, 2 (3.8%) had enteropathic arthritis, 1 (1.9%) with ReA another (1.9%) with uSpA (Fig. 1). The demographic features, clinical manifestations, ESR, CRP and therapeutic profile of the studied SpA patients are presented in Table 1. The mean age of the patients was 39 ± 10.8 years, with 31 (58%) males and 22 (42%) females (M:F 1.4:1). The mean disease duration was 10 ± 3.5 years. ILBP was present in all patients at the onset of the disease. Only one patient had monoarthritis, 30 (56.6%) had oligoarthritis while, 22 (41.5%) patients had polyarthritis. About one third of the patients had psoriasis. Uveitis was reported in 6 patients and family history of SpA was evident in 11 (6 had AS and 5 had PsA).

When evaluating the disease activity in AS patients using the BASDAI score, none of the patients was inactive. However, 16 (55.2%) had very high disease activity, 11 (37.9%) had high and 2 (6.9%) moderate disease activity.

Radiographic findings of the peripheral joints are shown in Table 2. Acro-osteolysis was detected in one PsA patient and arthritis mutilans in another. Radiographic features of the SIJ are presented in Table 3. By conventional radiographs,

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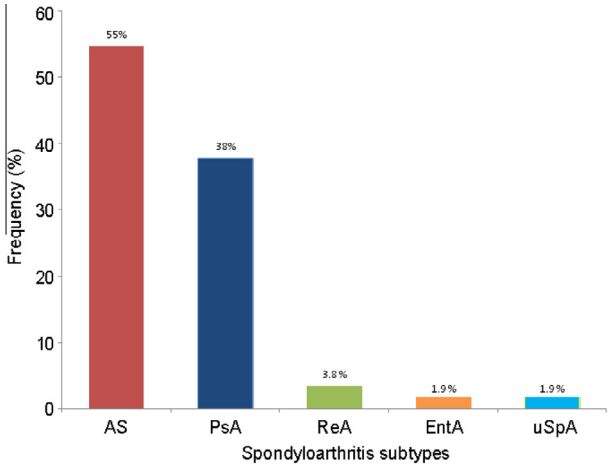

Figure 1 Frequency of the distribution of the spondyloarthritis patients subtypes. AS: ankylosing spondylitis, PsA: psoriatic arthritis, ReA: reactive arthritis, EntA: enteropathic arthritis, uSpA: undifferentiated spondyloarthritis.

43 (81.1%) showed evidence of sacroiliitis. MRI of the SIJs was normal in 9.4% of patients while ankylosis was detected in 52.8%. X-ray hand in a PsA patient showing multiple joints deformities is presented in Fig. 2 and of the SIJ in an AS patient in Fig. 3.

4. Discussion

Seronegative SpA denotes a family of inflammatory arthritides that include AS, PsA, ReA and enteropathic arthritis associated with IBD [16]. It is well known that the prevalence of seronegative SpA shows considerable differences among ethnic groups and populations [17] and globally reported to be ~1% [18]. The prevalence of SpA was calculated as 0.32–1.73% in Europe [19], 0.45% in southern Sweden [20], 0.01% in Japan [21] and 2.5% in Northern Arctic natives. The exact prevalence of SpA in the United States is not clear. This variation in prevalence of SpA as a disease may be attributed to geographic variation in the prevalence of HLA-B27. Also, it may be explained by variation in quality and bias of the methodologic approaches.

The frequency of males with SpA was slightly increased than that of females. In agreement a sex ratio of SpA in favor of males has been reported [21,22]. It is not surprisingly that all studied patients had ILBP at disease onset as the SpA diseases affect mainly axial joints. Similarly, ILBP was present in all Tunisian AS patients [23]. Enthesitis, which is a characteristic feature of SpA diseases, were only found in 9.4% of cases. On the contrary, 64.4% of the entheseal sites in Egyptian patients with early SpA were abnormal by ultrasonography [9].

The NSAIDs were considered the drug of choice by the SpA patients for pain and stiffness. Interest in NSAIDs as disease-modifying agents has been rekindled by data indicating reduced progression in patients on continuous, as opposed to on-demand, treatment [24]. Besides the dramatic, well demonstrated symptomatic effect, NSAIDs might be able to reduce the level of acute phase reactants [25] and was reported to retard radiological progression of the spine when given daily at a high dose [26]. Systemic steroids were used by about half of the patients. However, this was not associated with specific indications like uveitis. It may be due to the limited availability and high cost of biological therapy in Egypt. However, almost half of the patients have recently received biological therapy either infliximab or etanercept.

In the present study, all patients had ILBP and affection of both axial and peripheral arthritis was the most common presentation in SpA. This was in agreement with the study conducted by Saad et al. [27]. In a study on Egyptian patients with early SpA, peripheral arthritis was found in 44.4% and axial involvement in 42.2% [9]. Oligoarthritis (56.6%) was more common than polyarthritis (41.5%) and AS represented the most common disease subtype among SpA patients. AS is

Table 1 Demographic features, clinical characteristics, ESR, CRP and therapeutic profile of the spondyloarthritis patients.

Characteristics mean ± SD or *n* (%)		SpA patients (*n* = 53)
Age (years)		39 ± 10.8
Sex (M:F)		31:22
Low socio-economic status		44 (83)
Disease duration		
< 1 year		3 (5.7)
3–5 years		18 (34)
5–10 years		9 (17)
> 10 years		23 (43.4)
ILBP at disease onset		53 (100)
Peripheral joints affected		
< 2 joints		1 (1.9)
2–4 joints		30 (56.6)
5–10 joints		22 (41.5)
Arthritis		
Axial		9 (17)
Peripheral		3 (5.7)
Both		41 (77.4)
Peripheral arthritis		
Upper limb joints		4 (7.5)
Lower limb joints		15 (28.3)
Both		25 (47.2)
Enthesitis		5 (9.4)
Dactylitis		5 (9.4)
Bursitis		5 (9.4)
Psoriasis		20 (37.7)
Uveitis		6 (11.3)
Family history of SpA		11 (20.8)
Hypertension		3 (5.7)
Diabetes mellitus		7 (13.2)
ESR		44.7 ± 24.3
CRP		15.5 ± 12.2
Medications	NSAIDs	53 (100)
	Conventional DMARDs	30 (56.6)
	Systemic steroids	30 (56.6)
	Local steroid injection	8 (15)
	Infliximab	30 (56.6)
	Etanercept	2 (5.8)

SpA: spondyloarthritis, ILBP: inflammatory low back pain, ESR: erythrocyte sedimentation rate, CRP: C-reactive protein, NSAIDs: non-steroidal anti-inflammatory drugs, DMARDs: disease modifying antirheumatic drugs.

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Table 2 Conventional radiological features of the peripheral joints involved in spondyloarthritis patients.

Peripheral joints X-ray features *n* (%)	SpA patients (*n* = 53)
Normal	32 (60.4)
Soft tissue swelling	19 (35.8)
Joint space narrowing	20 (37.7)
Periarticular osteoporosis	20 (37.7)
Joint deformities	7 (13.2)
Acro-osteolysis	1 (1.9)
Arthritis mutilans	1 (1.9)

SpA: spondyloarthritis.

Table 3 Radiological features of the sacroiliac joints in spondyloarthritis patients.

SIJ radiological features *n* (%)		SpA patients (*n* = 53)
Plain X-ray	Grade 0	10 (18.9)
	Grade 1	5 (9.4)
	Grade 2	6 (11.3)
	Grade 3	7 (13.2)
	Grade 4	25 (47.2)
MRI	Normal	5 (9.4)
	BME	5 (9.4)
	Narrowing	6 (11.3)
	Sclerosis	9 (17)
	Ankylosis	28 (52.8)

SpA: spondyloarthritis, SIJ: sacroiliac joint, MRI: magnetic resonance imaging, BME: bone marrow edema.

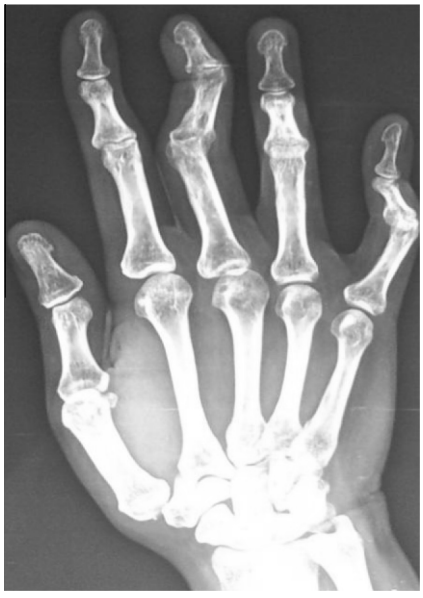

Figure 2 Posteroanterior radiograph of the hand in a psoriatic arthritis patient showing multiple joints deformities.

the most widely recognized representative of SpA diseases [17]. AS was the most prevalent in population-based studies conducted in Greece [22] and in the United States [28] while PsA

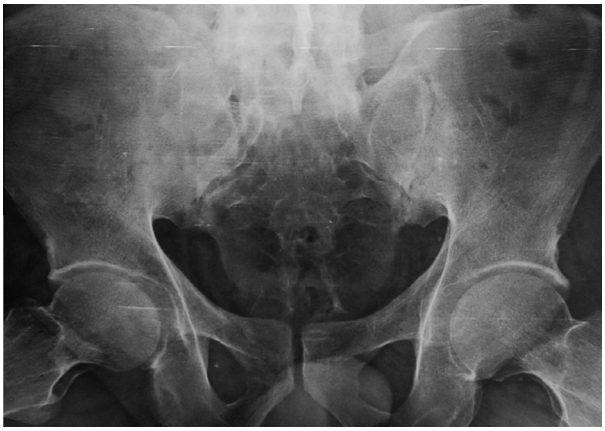

Figure 3 Frontal radiograph of the sacroiliac joints (SIJ) in ankylosing spondylitis patient showing ankylosed right SIJ with subchondral bone sclerosis at the left.

was the commonest in Italy [29] and Finland [30]. However, some hospital based studies from India have reported uSpA to be the commonest subset [31,32]. Psoriatic skin lesions were detected in about one third of the patients, this percentage represents the patients diagnosed as PsA. Disease distribution differs according to ethnicity. In the USA, PsA comprised 36.4% of the SpA population [33] and was 34.8% in Greece [22]. PsA is highly prevalent in Argentina (60.2%) but is much lower in Brazil (13.7%) and Guatemala (10%) [27].

In this study, uveitis was present in 6 (11.3%) patients. Similarly, uveitis was reported in 18.6% of Chilean SpA patients [34] and in 20% of Egyptian SpA patients [9]. It was the most frequent extraarticular feature in SpA [35] that was reported to develop in 25% of AS patients and up to 10% with early PsA [36]. The prevalence increases with disease duration and is higher in HLA-B27- positive [37].

Importantly, family history of SpA, AS followed by PsA, was positive in 11 (20.8%) of the studied patients. Family history was well reported in SpA cases, more in AS due to genetic factor and association of HLA-B27 [38].

By plain X-ray, normal peripheral joints and SIJs were present in 60.4% and 18.9% respectively, while the rest of the patients had sclerosis, narrowing and ankylosis of SIJs. MRI on the sacroiliac joints showed ankylosis in about half of the patients. This may contribute to long disease duration, defective therapy and delayed treatment with biological therapy [39]. Spondyloarthropathies (SpA) are a group of disorders that primarily affect the synovial joints of the axial and appendicular skeleton of variable predilections. Plain radiography is the initial and standard method of investigation in axial SpAs. However, MRI has been increasingly used in evaluating SpAs during the early phases of the disease or when radiographic findings are equivocal [40]. The role of imaging in the evaluation and management of SpA has experienced a resurgence of interest with the introduction of MRI [41]. Different types of SpAs demonstrate different imaging characteristics that are important to identify to reach the correct diagnosis [40].

The present study is limited by the design of the study which does not allow follow up of the patients for assessment of the efficacy of the newly introduced biological therapy. The number of patients was relatively small and other validated scores e.g. BASRI were not used.

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In *conclusion*, the results of this study show a broad characterization of different aspects of SpA patients in Mansoura Governorate. These data allow a better understanding of the disease and therefore may be useful for planning future care and service demands.

Conflict of interest

None.

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