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ORIGINAL ARTICLE

Current characteristics of a population of psoriatic arthritis and gender disparities

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ABSTRACT

Background and Aim: Psoriatic arthritis (PsA) is a polymorphic disease associated with numerous comorbidities. The objective of this study was to describe the main clinicobiological and imaging characteristics of a population of PsA and to extract any disparities between men and women.
Methods: A total of 132 patients in the rheumatology department of Amiens University Hospital with a confirmed diagnosis of PsA according to the CASPAR criteria were included over a period of 4 months. All data were collected retrospectively in this observational and single-center study.
Results: The sex ratio was 1 and the average age at inclusion was 54.9 years. Peripheral PsA was the predominant clinical form. Axial PsA represented 12.1% of cases. Enthesitis was noted in 52.3% of cases while dactylitis was identified in 29.5% of cases. Moreover, 12.1% had a joint symptomatology preceding the appearance of cutaneous signs. HLA-B*27 positivity was found in 33.3% of cases. Chronic hyperuricemia accounted for 10% of our population. Sacroiliitis was observed in 41% of cases. The disparities between men and women are multiple and consistent with the literature: Polyarticular form, enthesitis, obesity, more intensive prescription of s-DMARDs, and b-DMARDs are more associated with the female population. Oligoarticular form, psoriatic nail dystrophy, radiological axial involvement, and chronic hyperuricemia are more encountered in the male population.
Conclusions: Our study found a very heterogeneous disease, with marked differences between men and women. Peripheral PsA remains predominant but the search for associated axial involvement, which is probably underestimated, seems essential.
Relevance for Patients: This work studied the main characteristics of patients with PsA followed in real life, in a regional university reference center. We have highlighted a very heterogeneous disease as well as some gender disparities, not well described in the literature, which should be taken into account in order to optimize therapeutic management.

1. Introduction

Psoriatic arthritis (PsA) is a chronic inflammatory rheumatic disease classically associated with psoriasis (PsO), a chronic inflammatory skin disease. It is a polymorphic disease from a clinical, biological, and radiological point of view, but also in terms of severity and evolution, with no specific biomarker identified, making its diagnosis difficult for both the general practitioner and the specialists. One of the challenges today is the early diagnosis of the disease.

The incidence of PsA in the general population varies from 3.6 to 7.2/100 000 person-years in the most recent publications [1]. In France, the prevalence of PsA in the general

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population is estimated to be 0.19% [2]. For the patients with PsO, it is currently estimated at 2.04% to 23.90% [3]. Chandran and Raychaudhuri showed a disparity in the prevalence of PsA worldwide: Higher in the European population compared to the Japanese population, which can be explained by a differential of genetic and environmental factors [4].

Clinically, it can affect the entire skeleton, both peripheral and axial, with more or less diffuse clinical forms and symptoms that are often nonspecific and easily assimilated to mechanical manifestations of degenerative origin. Axial involvement is characterized mainly by inflammatory back pain (IBP) and sacroiliac joint pain. Peripheral involvement is characterized by polyarticular, oligoarticular, rather asymmetrical, or more rarely, monoarticular forms, which may or may not be associated with enthesitis or dactylitis. The main extra-musculoskeletal manifestations (EMMs) encountered are psoriasis, uveitis, and inflammatory bowel disease (IBD).

PsA is also characterized by a wide variety of radiological lesions. The radiographs may show peripheral destructive and/or reconstructive lesions, often asymmetrical, preferentially affecting the distal interphalangeal (DIP) and/or proximal interphalangeal (PIP), or axial lesions including syndesmophytes that may go as far as the bamboo-spine and sacroiliitis. Note the undeniable contribution of cross-sectional imaging (computed tomography [CT] scan and magnetic resonance imaging [MRI]) and musculoskeletal ultrasound in the lesion assessment.

The management of PsA has evolved according to new concepts and treatments: The EULAR recommendations are in line with this [5]. Among pharmacological measures, non-steroidal anti-inflammatory drugs (NSAIDs) are still the first-line treatments, regardless of the clinical expression of the disease. Synthetic or biological disease-modifying antirheumatic drugs (DMARDs) may be considered as second-line treatments, with the choice of therapy depending on the clinical presentation and comorbidities [6]. Non-pharmacological measures include smoking cessation, weight reduction if necessary, regular physical activity, and physical therapy/rehabilitation.

The aim of our study was to describe the main clinicobiological and imaging characteristics of a population of PsA. We retained as secondary objectives to study, on the one hand, the disparities between men and women on all collected data, and on the other hand, the association between chronic hyperuricemia and PsA.

2. Materials and Methods

2.1. Patient selection

We carried out an epidemiological, observational, descriptive, single-center (including only the Rheumatology department of Amiens University Hospital) and retrospective study. We prospectively included all patients with PsA seen in consultation, day hospital, and conventional hospitalization, over a 4-month period. Any patient over 18 years of age, with a confirmed diagnosis of PsA according to CLASsification Criteria for PsA, could be included in this study. Cases of Synovitis-Acne-Pustulosis-Hyperostosis-Osteitis were excluded from the study.

All patients were informed about the study's objectives and agreed to the anonymous use of the collected data. The study was conducted in accordance with the Declaration of Helsinki. The protocol was approved by the Ethics Committee of Department of Clinical Research and Innovation (DRCI) of the Amiens-Picardie University Hospital, and a conformity declaration to a reference methodology to the National Commission for Computing and Civil Liberties (CNIL) was made (Project identification code: PI2022_843_0090).

2.2. Data recorded

Data were collected as part of routine clinical practice, and electronic medical records were obtained. For each patient, the following variables were recorded from the medical file, at the time of diagnosis or, failing that, at the time of the first rheumatology consultation:

- Demographic characteristics (age, sex, height, weight, and body mass index).
- Cardiovascular risk factors (active smoking, excessive alcohol consumption, overweight and obesity, high blood pressure, Type 2 diabetes, and dyslipidemia).
- Other comorbidities (chronic kidney disease, anxiety-depressive disorder, liver disease, lymphoma, stroke, coronary artery disease, venous thromboembolic disease, orthopedic surgery and type, personal and/or family history of gout, asymptomatic hyperuricemia, and family history of PsA and/or psoriasis).
- Rheumatologic clinical data (predominant form (axial, peripheral or mixed), enthesitis, dactylitis, and age of onset of musculoskeletal manifestations).
- Dermatologic clinical data (type of psoriasis, specific involvement of the scalp and/or intergluteal cleft, psoriatic nail dystrophy, and age of onset of skin manifestations).
- EMMs (uveitis, IBD, valvulopathy, and lung disease).
- Biological data (positivity of HLA-B*27 allele, positivity of rheumatoid factor (RF), anticitrullinated protein antibodies (ACPA) and anti-nuclear antibodies (ANA), complete blood count, sedimentation rate (ESR), C-reactive protein (CRP), liver function, creatinine, modification of diet in renal disease clearance, lipid profile including total cholesterol, triglycerides, low density lipoprotein cholesterol (LDLc) and high density lipoprotein cholesterol (HDLc), fasting blood glucose and glycated hemoglobin, uricemia, and 25-OH-vitamin D.
- Radiological data (predominant form (axial, peripheral, and/or enthesitic), sacroiliitis, syndesmophyte, Romanus lesion, destructive and/or reconstructive bone lesions, enthesitis, and contribution of peripheral joints and entheses ultrasound). All the images taken at the Amiens University Hospital were reviewed by us.
- Therapeutic data (current NSAIDs use, s-DMARDs use (methotrexate, leflunomide, salazopyrin, apremilast), and b-DMARDs use (tumor necrosis factor inhibitor (TNFi), interleukin-17 inhibitors (IL-17i), and interleukin-12/23 inhibitors (IL-12/23i)).

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2.3. Statistical analysis

Quantitative variables are expressed as median and quartiles, and categorical variables are expressed as number and percentage. Missing data were not replaced. Male/female comparability was analyzed by Chi-squared test and Fischer's exact test. $P < 0.05$ was considered statistically significant. All statistical analyses were performed using Numbers and BiostaTGV.

3. Results

3.1. Demographic characteristics and comorbidities

A total of 132 patients were included (66 men and 66 women). The average age of our population was 54.9 years (54.3 years in men and 55.3 years in women). As shown in Table 1, cardiovascular risk factors were highly represented: Active smoking (33.3%), obesity (31.8%), Type 2 diabetes (18.2%), and dyslipidemia (39.4%). It should be noted that anxiety and depression were frequently encountered in our PsA population (20.4%).

3.2. Clinical characteristics

In terms of rheumatology, peripheral PsA is the predominant clinical form: Polyarticular involvement represents 61.4% of cases, oligoarticular involvement 24.2%. IBP is the most common axial manifestation. We note a significant proportion of enthesitis (52.3%). Finally, 29.5% of the patients presented at least once an episode of dactylitis.

In terms of dermatology, plaque psoriasis predominated (96.2%). Among the three anatomical locations associated with an increased risk of developing PsA, the scalp was the most frequent (59.1%), followed by the nail and the intergluteal cleft. About 12.1% of our population had musculoskeletal involvement pre-existing the skin involvement (10.6% of men and 13.6% of women). In this category, the mean time to onset of skin involvement was 6.1 years, all sexes combined.

For the EMMs, five cases of acute anterior uveitis were reported (3.8%) and four cases of IBD were notified (3%), each corresponding to Crohn's disease.

All clinical characteristics are listed in Table 2.

3.3. Biological characteristics

Seventy-eight patients were tested for the HLA-B*27 allele. Among these, 33.3% were HLA-B*27 positive. Among the total population, RF and ACPA were found in 5.3% and 2.3%, respectively. About 22.7% of the population had positive ANA, the majority of which were non-specific.

Eighty-one patients out of 132 had lipid profile (39 men and 42 women) and 82 patients out of 132 had uric acid test during the course of the disease (43 men and 39 women). There was a tendency for men with PsA to have hyperuricemia and a higher biological inflammatory syndrome compared to women.

These data are listed in Table 3.

Among the 15 patients with hyperuricemia: 80% were overweight or obese, 60% had dyslipidemia, 53.3% had

Table 1. Demographic characteristics and comorbidities

Parameters	Whole population (*n* = 132)	Men (*n* = 66)	Women (*n* = 66)	*P*-value
Age (years), *med* [Q1 – Q3]	55.0 [44.8 – 65.0]	55.0 [43.0 – 65.0]	54.5 [48.0 – 64.8]	x
BMI (kg/m2), *med* [Q1 – Q3]	x	26.2 [23.9 – 29.6]	28.4 [24.8 – 33.5]	x
Active smoking, *n* (%)	44 (33.3%)	23 (34.8%)	21 (31.8%)	0.71
Excessive alcohol consumption, *n* (%)	8 (6.1%)	7 (10.6%)	1 (1.5%)	0.06
Overweight, *n* (%)	49 (37.1%)	26 (39.4%)	23 (34.8%)	0.59
Obesity, *n* (%)	42 (31.8%)	16 (24.2%)	26 (39.4%)	0.06
High blood pressure, *n* (%)	43 (32.6%)	21 (31.8%)	22 (33.3%)	0.85
Type 2 diabetes, *n* (%)	24 (18.2%)	11 (16.7%)	13 (19.7%)	0.65
Dyslipidemia, *n* (%)	52 (39.4%)	26 (39.4%)	26 (39.4%)	1.00
Chronic kidney disease, *n* (%)	10 (7.6%)	4 (6.1%)	6 (9.1%)	0.51
Anxiety-depressive disorder, *n* (%)	27 (20.4%)	10 (15.1%)	17 (25.8%)	0.13
Liver disease, *n* (%)	16 (12.1%)	9 (13.6%)	7 (10.6%)	0.59
Lymphoma, *n* (%)	3 (2.3%)	1 (1.5%)	2 (3.0%)	1.00
Stroke, *n* (%)	4 (3.0%)	4 (6.1%)	0 (0.0%)	0.12
Coronary artery disease, *n* (%)	11 (8.3%)	6 (9.1%)	5 (7.6%)	0.75
Venous thromboembolic disease, *n* (%)	9 (6.8%)	3 (4.5%)	6 (9.1%)	0.49
Orthopedic surgery, *n* (%)	36 (27.3%)	14 (21.2%)	22 (33.3%)	0.12
Personal history of gout, *n* (%)	5 (3.8%)	5 (7.6%)	0 (0.0%)	0.06
Family history of gout, *n* (%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	1.00
Asymptomatic hyperuricemia, *n* (%)	13 (9.8%)	9 (13.6%)	4 (6.1%)	0.24
Family history of PsO, *n* (%)	42 (31.8%)	15 (22.7%)	27 (40.9%)	0.02
Family history of PsA, *n* (%)	15 (11.4%)	9 (13.6%)	6 (9.1%)	0.41

n: Number; *med*: Median value; *Q1*: First quartile; *Q3*: Third quartile; BMI: Body mass index

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Table 2. Clinical characteristics

Parameters	Whole population (*n* = 132)	Men (*n* = 66)	Women (*n* = 66)	*P*-value
Axial form, *n* (%)	16 (12.1%)	9 (13.6%)	7 (10.6%)	0.59
Peripheral form, *n* (%)	74 (56.1%)	40 (60.6%)	34 (51.5%)	0.29
Mixed form, *n* (%)	42 (31.8%)	17 (25.8%)	25 (37.9%)	0.13
IBP, *n* (%)	52 (39.4%)	26 (39.4%)	26 (39.4%)	1.00
Sacroiliac joint pain, *n* (%)	35 (26.5%)	14 (21.2%)	21 (31.8%)	0.17
Monoarticular damage, *n* (%)	3 (2.3%)	2 (3.0%)	1 (1.5%)	1.00
Polyarticular damage, *n* (%)	81 (61.4%)	35 (53.0%)	46 (69.7%)	0.047
Oligoarticular damage, *n* (%)	32 (24.2%)	19 (28.8%)	13 (19.7%)	0.22
Enthesitis, *n* (%)	69 (52.3%)	29 (43.9%)	40 (60.6%)	0.049
Dactylitis, *n* (%)	39 (29.5%)	21 (31.8%)	18 (27.3%)	0.57
Plaque psoriasis, *n* (%)	127 (96.2%)	65 (98.5%)	62 (93.9%)	0.17
Guttate psoriasis, *n* (%)	3 (2.3%)	1 (1.5%)	2 (3.0%)	1.00
Pustular psoriasis, *n* (%)	4 (3.0%)	1 (1.5%)	3 (4.5%)	0.62
Erythrodermic psoriasis, *n* (%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	1.00
Inverse psoriasis, *n* (%)	29 (22.0%)	14 (21.2%)	15 (22.7%)	0.83
Scalp involvement, *n* (%)	78 (59.1%)	36 (54.5%)	42 (63.6%)	0.29
Intergluteal cleft involvement, *n* (%)	28 (21.2%)	13 (19.7%)	15 (22.7%)	0.67
Nail involvement, *n* (%)	35 (26.5%)	24 (36.4%)	11 (16.7%)	0.01
Primary skin involvement, *n* (%)	116 (87.9%)	59 (89.4%)	57 (86.4%)	0.59
Primary joint involvement, *n* (%)	16 (12.1%)	7 (10.6%)	9 (13.6%)	0.59
Anterior uveitis, *n* (%)	5 (3.8%)	4 (6.1%)	1 (1.5%)	0.36
IBD, *n* (%)	4 (3.0%)	1 (1.5%)	3 (4.5%)	0.62
Valvulopathy, *n* (%)	1 (0.8%)	1 (1.5%)	0 (0.0%)	1.00
Lung disease, *n* (%)	2 (1.5%)	2 (3.0%)	0 (0.0%)	0.50

n: Number; IBP: Inflammatory back pain; IBD: Inflammatory bowel disease

hypertension, and 33.3% had Type 2 diabetes. In addition, of the four patients with stroke, two had hyperuricemia. From a clinical point of view: The majority of patients presented a polyarticular form (73.3%), dactylitis was encountered in 26.7% of cases while enthesitis was present in 46.7% of cases. Regarding dermatological involvement, scalp involvement accounted for 60% of cases, nail involvement for 53.3% of cases, and intergluteal cleft for 33.3% of cases. All the patients had cutaneous signs preceding the articular signs.

As shown in the Table 4, we had no significant difference between the two groups (HLA-B*27 positive versus HLA-B*27 negative) with respect to dactylitis, enthesitis, sacroiliitis, syndesmophytes, biological inflammatory syndrome, lipid profile, and hyperuricemia. Nevertheless, we noted a higher proportion of low HDL cholesterol in the HLA-B*27 positive group.

3.4. Radiological characteristics

One-third of the patients in our study had radiological axial signs. Among the axial radiographic signs, sacroiliitis was predominant (18.2%). Regarding peripheral radiographic signs, there was a probable underestimation of reconstructive lesions (6.8%) because for some patients, only the radiological report was available. About 19.7% of patients had radiographic enthesitic damage.

Among the patients who underwent CT scan and/or MRI of the sacroiliac joints (61 individuals in total), 41% had sacroiliitis, 76% of which was bilateral. Among the patients who had an ultrasound examination of the peripheral joints and/or entheses (51 people in total), 64.7% had at least one active synovitis. About 15.7% had at least one erosion, 62.5% of which were visible on radiographic examination.

All radiological characteristics are listed in Table 5.

3.5. Therapeutic characteristics

At the time of patient inclusion, 17.4% were currently using NSAIDs. Our focus was on the prescribing of s-DMARDs (methotrexate, leflunomide, salazopyrin, and apremilast) and b-DMARDs (TNFi, IL-17i, and IL-12/23i). Methotrexate was the leader among s-DMARDs (92.7% prescribing). Among b-DMARDs, TNFi was the majority used (98.1% prescribing). An average of 1.7 TNFi drugs was used during the course of the disease (1.6 in men and 1.8 in women). Patients were on TNFi for an average of 5.9 years. All therapeutic characteristics are listed in Table 6.

4. Discussion

Our work studied the main characteristics of patients with PsA, followed in real life, in a regional university reference center.

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Table 3. Biological characteristics

Parameters	Whole population (*n* = 132)	Men (*n* = 66)	Women (*n* = 66)	*P*-value
HLA-B*27 positive, *n* (%)	26/78 (33.3%)	15/38 (39.5%)	11/40 (27.5%)	0.26
RF positive, *n* (%)	7 (5.3%)	4 (6.1%)	3 (4.5%)	1.00
ACPA positive, *n* (%)	3 (2.3%)	1 (1.5%)	2 (3.0%)	1.00
ANA positive, *n* (%)	30 (22.7%)	11 (16.7%)	19 (28.8%)	0.10
CRP (mg/L), *n* (%)				0.12
<5	69 (52.3%)	30 (45.5%)	39 (59.1%)	
>5	63 (47.7%)	36 (54.5%)	27 (40.9%)	
ESR (mm), *n* (%)				0.36
<20	87 (65.9%)	46 (69.7%)	41 (62.1%)	
>20	45 (34.1%)	20 (30.3%)	25 (37.9%)	
Total cholesterol (g/L), *n* (%)				0.39
<2	48/81 (59.3%)	25/39 (64.1%)	23/42 (54.8%)	
>2	33/81 (40.7%)	14/39 (35.9%)	19/42 (45.2%)	
HDLc (g/L), *n* (%)				0.12
<0.4	17/81 (21.0%)	11/39 (28.2%)	6/42 (14.3%)	
>0.4	64/81 (79.0%)	28/39 (71.8%)	36/42 (85.7%)	
LDLc (g/L), *n* (%)				0.65
<1.6	68/81 (84.0%)	32/39 (82.1%)	36/42 (85.7%)	
>1.6	13/81 (16.0%)	7/39 (17.9%)	6/42 (14.3%)	
Triglycerides (g/L), *n* (%)				0.10
<1.5	55/81 (67.9%)	23/39 (59.0%)	32/42 (76.2%)	
>1.5	26/81 (32.1%)	16/39 (41.0%)	10/42 (23.8%)	
Uricemia (µmol/L), *n* (%)				0.07
<420 (M) or<360 (W)	67/82 (81.7%)	32/43 (74.4%)	35/39 (89.7%)	
>420 (M) or>360 (W)	15/82 (18.3%)	11/43 (25.6%)	4/39 (10.3%)	

n: Number; HLA: Human leukocyte antigen; RF: Rheumatoid factor; ACPA: Anticitrullinated protein antibodies; ANA: Anti-nuclear antibodies; CRP: C-reactive protein; ESR: Erythrocyte sedimentation rate; HDLc: High-density lipoprotein cholesterol; LDLc: Low-density lipoprotein cholesterol; M: Men; W: Women

Their inclusion over 4 consecutive months allowed us to find rather young patients (the mean age of onset of musculoskeletal and skin involvement was 42.2 and 32.6 years, respectively), in line with recent data [7] and above all a sex ratio of 1, similar with other publications [8] and thus to highlight some gender disparities, which is little described while some recent data suggest differences in response to treatment between men and women, as showed by Coates and al [9].

The prevalence of cardiovascular risk factors is not negligible in our PsA population. Thus, Bohle and al showed that patients with PsA had a significantly higher mean BMI compared to PsO alone, RA (rheumatoid arthritis) and general population (29.6, 27.9, 27.3, and 26.1, respectively) [10]. Other authors reported an increased prevalence of Type 2 diabetes and hypertriglyceridemia compared to RA patients (15% versus 11% for Type 2 diabetes and 38% versus 28% for hypertriglyceridemia) [11] and a highest number of cardiovascular risk factors compared to RA patients (2.04 ± 0.16 versus 1.68 ± 0.13) [12].

It should be noted that the anxiety-depressive manifestations are not negligible, from 13.2 to 31.6% as shown in the literature [13]. This suggests the interest of psychological support in this pathology.

Our results reflect the clinical heterogeneity encountered in this pathology. Peripheral PsA is the predominant clinical form. IBP was the most common axial manifestations, followed by sacroiliac joint pain. The concept of PsA with only axial involvement is emerging. In our work, exclusive axial involvement was found in 12.1% of our PsA patients which is less compared to other studies. Thus, Baraliakos and al showed that 30 – 50% of PsA patients will develop axial PsA involving the spine or the sacroiliac joints [14]. A recent study reports a prevalence of axial involvement in PsA between 25 and 70% with pure axial symptomatology in 5% of patients [15].

Among the peripheral manifestations observed in our study, polyarticular presentation predominates and is more frequent in the female population, whereas oligoarticular presentation comes second and is essentially found in the male population, as showed by Eder and al [16]. In addition, the PsA cohort from the University of Toronto showed 36% enthesitis and 33% dactylitis, which is consistent with our data [7].

Regarding dermatological involvement, we recall that plaque psoriasis was the majority. Our study probably underestimates nail damage, since the literature shows a prevalence of between 41 and 93% depending on the source [17]. The absence of psoriasis does not exclude the diagnosis of PsA. Indeed, in our study,

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Table 4. Characteristics according to HLA-B*27

Parameters	HLA-B*27 + (*n* = 26)	HLA-B*27 - (*n* = 52)	*P*-value
Dactylitis, *n* (%)	7/26 (26.9%)	11/52 (21.1%)	0.57
Enthesitis, *n* (%)	13/26 (50.0%)	30/52 (57.7%)	0.52
Sacroiliitis, *n* (%)	8/26 (30.8%)	12/52 (23.1%)	0.46
Syndesmophyte, *n* (%)	5/26 (19.2%)	6/52 (11.5%)	0.36
CRP (mg/L), *n* (%)			0.25
<5	13/26 (50.0%)	33/52 (63.5%)	
>5	13/26 (50.0%)	19/52 (36.5%)	
ESR (mm), *n* (%)			0.22
<20	16/26 (61.5%)	39/52 (75.0%)	
>20	10/26 (38.5%)	13/52 (25.0%)	
Total cholesterol (g/L), *n* (%)			0.23
<2	8/13 (61.5%)	13/31 (41.9%)	
>2	5/13 (38.5%)	18/31 (58.1%)	
HDLc (g/L), *n* (%)			0.06
<0.4	5/13 (38.5%)	4/31 (12.9%)	
>0.4	8/13 (61.5%)	27/31 (87.1%)	
LDLc (g/L), *n* (%)			0.59
<1.6	10/13 (76.9%)	26/31 (83.9%)	
>1.6	3/13 (23.1%)	5/31 (16.1%)	
Triglycerides (g/L), *n* (%)			0.92
<1.5	9/13 (69.2%)	21/31 (67.7%)	
>1.5	4/13 (30.8%)	10/31 (32.3%)	
Uricemia (µmol/L), *n* (%)			0.98
<420 (M) or <360 (W)	11/13 (84.6%)	27/32 (84.4%)	
>420 (M) or >360 (W)	2/13 (15.4%)	5/32 (15.6%)	

n: Number; HLA: Human leukocyte antigen; CRP: C-reactive protein; ESR: Erythrocyte sedimentation rate; HDLc: High-density lipoprotein cholesterol; LDLc: Low-density lipoprotein cholesterol; M: Men; W: Women

Table 5. Radiological characteristics

Parameters	Whole population (*n* = 132)	Men (*n* = 66)	Women (*n* = 66)	*P*-value
Axial form, *n* (%)	44 (33.3%)	22 (33.3%)	22 (33.3%)	1.00
Peripheral form, *n* (%)	40 (30.3%)	20 (30.3%)	20 (30.3%)	1.00
Enthesitic form, *n* (%)	30 (22.7%)	15 (22.7%)	15 (22.7%)	1.00
Radiographic signs, *n* (%)				
Sacroiliitis	24 (18.2%)	15 (22.7%)	9 (13.6%)	0.18
Syndesmophyte	16 (12.1%)	11 (16.7%)	5 (7.6%)	0.11
Destructive bone lesions	39 (29.5%)	20 (30.3%)	19 (28.8%)	0.85
Reconstructive bone lesions	9 (6.8%)	5 (7.6%)	4 (6.1%)	1.00
Enthesitis	26 (19.7%)	13 (19.7%)	13 (19.7%)	1.00
CT scan and/or MRI signs, *n* (%)				
Sacroiliitis	25/61 (41.0%)	11/27 (40.7%)	14/34 (41.2%)	0.97
Syndesmophyte	8/61 (13.1%)	6/27 (22.2%)	2/34 (5.9%)	0.12
Romanus lesion	9/61 (14.7%)	6/27 (22.2%)	3/34 (8.8%)	0.17
Ultrasound signs, *n* (%)				
Synovitis	33/51 (64.7%)	11/22 (50.0%)	22/29 (75.9%)	0.06
Tenosynovitis	14/51 (27.4%)	3/22 (13.6%)	11/29 (37.9%)	0.07
Bone erosions	8/51 (15.7%)	3/22 (13.6%)	5/29 (17.2%)	1.00
Enthesitis	5/51 (9.8%)	3/22 (13.6%)	2/29 (6.9%)	0.64

n: Number; CT: Computed tomography; MRI: Magnetic resonance imaging

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Table 6. Therapeutic characteristics

Parameters	Whole population (*n* = 132)	Men (*n* = 66)	Women (*n* = 66)	*P*-value
NSAIDs prescription, *n* (%)	23 (17.4%)	12 (18.2%)	11 (16.7%)	0.82
s-DMARDs prescription, *n* (%)	110 (83.3%)	50 (75.8%)	60 (90.9%)	0.02
b-DMARDs prescription, *n* (%)	107 (81.1%)	49 (74.2%)	58 (87.9%)	0.04
s-DMARDs, *n* (%)				
Methotrexate	102/110 (92.7%)	44/50 (88.0%)	58/60 (96.7%)	0.14
Leflunomide	24/110 (21.8%)	10/50 (20.0%)	14/60 (23.3%)	0.67
Salazopyrin	17/110 (15.4%)	9/50 (18.0%)	8/60 (13.3%)	0.50
Apremilast	10/110 (9.1%)	6/50 (12.0%)	4/60 (6.7%)	0.51
b-DMARDs, *n* (%)				
TNFi	105/107 (98.1%)	47/49 (95.9%)	58/58 (100%)	0.21
IL-17i	22/107 (20.6%)	8/49 (16.3%)	14/58 (24.1%)	0.32
IL-12/23i	14/107 (13.1%)	5/49 (10.2%)	9/58 (15.5%)	0.42

n: Number; NSAIDs: Non-steroidal anti-inflammatory drugs; DMARDs: Disease-modifying antirheumatic drugs; s: Synthetic; b: Biological; TNFi: Tumour necrosis factor inhibitor; IL-17i: Interleukin-17 inhibitors; IL-12/23i: Interleukin-12/23 inhibitors

87.9% of our population had psoriasis, either pre-existing or synchronous with joint manifestations. On the other hand, 12.1% had a musculoskeletal involvement preceding the appearance of cutaneous signs, as showed by Tillett *et al.* [18].

HLA-B*27 was not performed for the whole patients (78/132) but its positivity was found in 33.3% of cases and is consistent with our previous data [19] and those of other works [20]. The presence of the HLA-B*27 allele seems to increase the risk of developing an axial form of PsA [21]. Of the 16 pure axial forms observed among our patients, 37.5% were HLA-B*27 positive, which tends to confirm this trend.

Furthermore, we listed three cases of ACPA positivity. Payet and al described the relationship between these antibodies and several inflammatory rheumatic diseases [22]. Although considered specific to RA, they were also found in PsA (10.6%). The positivity of ACPA, rare in PsA, should not lead to the exclusion of this diagnosis but may illustrate a borderline form with RA.

Our results show a radiographic axial damage of 33.3% suggesting a probable subclinical radiological axial involvement as previously reported in a Chinese population by Leung and al where 45% of PsA with radiological axial involvement were asymptomatic [23].

The relationship between the HLA-B*27 allele and axial forms of PsA is much debated. Fitzgerald and al described the association of the HLA-B*27:05:02 subtype with the presence of symmetric sacroiliitis [24]. In our study, among all the patients with HLA-B*27 positive, eight of them had radiological sacroiliitis (i.e., 30.8%).

In accordance with current recommendations of the management of PsA, DMARDs were used almost systematically. Among b-DMARDs, TNFi remains the leader of this therapeutic class and 55% of the patients received only one TNFi. Among this population, 89.7% were still on this therapy at the time of inclusion. The search for predictive factors of response to treatment is therefore still relevant and remains topical.

Many studies suggest a relationship between chronic hyperuricemia and PsA [25-27]. A recent study from Strasbourg [28] even put forward the idea of a new nosological entity called "psout" combining inflammatory rheumatism (PsA) and metabolic rheumatism (gout). Our results show a tendency, although not significant, for increased hyperuricemia in the male population compared with the female population. The fact that five cases of gout were reported in men (7.6%) and none in women is consistent with this. Nearly 10% of our population had asymptomatic hyperuricemia. Thus, uric acid test seems judicious, especially in our male population, to prevent the emergence of gout as early as possible.

Our study had several limitations: The retrospective design and its inherent bias constituted the limitations of our work. Our study was monocentric and conducted in a university hospital, which implies a possible recruitment bias. The main results of our study should be confirmed in multicenter studies of larger scales.

5. Conclusion

Our study on a population of patients with PsA highlights their young age at diagnosis and the non-negligible presence of cardiovascular risk factors, as with other inflammatory rheumatic diseases.

The male/female disparities were numerous: Increased tendency to obesity, enthesitis, and polyarticular form significantly increased in women whereas oligoarticular forms more often encountered in men in whom there was a significant increase in psoriatic nail dystrophy and radiological axial involvement.

In the future, we must strive for personalized medicine: The choice of treatment must be based on the dominant phenotypic presentation (axial, peripheral, enthesitis, and dactylitis), the severity of skin involvement, associated comorbidities, and EMMs (uveitis and IBD).

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Conflicts of Interest

The authors declare no competing interest on this study or its publication.

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