THE RELATIONSHIP BETWEEN PSORIATIC ARTHRITIS AND OBESITY: CLINICAL AND LABORATORY STUDY

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Introduction

Psoriatic arthritis (PsA) is an inflammatory arthritis, usually develops in patients with psoriasis. Patients who have PsA may have skin and nail disease with joint inflammation and may also have other manifestations like enthesitis, uveitis, dactylitis, axial inflammatory arthritis, metabolic syndrome and constitutional manifestations related to long term inflammation, such as fatigue. Obesity and PsA are linked by a common pathophysiological mechanism, which is chronic low-grade inflammation. Adipocytes show an imbalance resulting in an excessive secretion of inflammatory mediators known as adipokines. These adipokines include leptin, TNF-α , plasminogen activator inhibitor-1 (PAI-1) and interleukin-6 (IL-6). In particular, an increased prevalence of obesity has been reported in PsA as compared with the general population, suggesting that obesity may be a predisposing factor for PsA. On the other hand, PsA may be a predisposing factor for obesity because of functional and/ or psychological limitations.

Aim of the work

Aim of the work to investigate the relationship between Psoriatic arthritis and obesity.

Subjects and Methods

Patients:

Group I: Fifty patients diagnosed with psoriatic arthritis according to CASPAR criteria. Patients with other skin diseases, rheumatologic diseases other than PsA, chronic inflammatory or autoimmune diseases and patients on or with history of steroids intake were excluded.

Group II: Sixty healthy control subjects of matched age and sex with group I without any chronic rheumatologic disease or autoimmune disorders.

Methods: Demographic data, detailed history taking, body mass index, waist to hip ratio, waist circumference, body fat percentage (PBF) using Inbody 220 apparatus- Body composition analyzer, serum leptin level, C reactive protein were recorded from all patients and healthy subjects.

PsA disease activity was assessed by disease activity in psoriatic arthritis (DAPSA), Visual Analogue Scale (VAS) and functional ability was assessed by the Health Assessment Questionnaire disability index (HAQ-DI).

Results

Table 1: Comparison between the two studied groups according to clinical assessment of obesity and laboratory investigations

Clinical assessment of obesity	Patients group (n = 50)		Control group (n = 60)		Test of Sig.	p
	No.	%	No.	%		
BMI (kg/m²)						
Normal (18.5 – <25)	13	26.0	16	26.7	χ^2=0.808	0.668
Overweight (25 –<30)	14	28.0	21	35.0		
Obese (≥30)	23	46.0	23	38.3		
Non Obese (<30)	27	54.0	37	61.7	χ^2=0.659	0.417
Obese (≥30)	23	46.0	23	38.3		
Mean ± SD.	28.86 ± 5.74		29.53 ± 6.02			
Waist to Height						
Min. – Max.	0.41 – 0.80		0.38 – 0.72		t=1.569	0.120
Mean ± SD.	0.59 ± 0.09		0.56 ± 0.08			
Waist to hip ratio						
Males	(n = 22)		(n = 23)			
Normal (<0.9)	5 (22.7%)		6 (26.1%)		χ^2=0.069	0.793
Abnormal (≥0.9)	17 (77.3%)		17 (73.9%)			
Females	(n = 28)		(n = 37)			
Normal (<0.85)	7 (25%)		11 (29.7%)		χ^2=0.178	0.673
Abnormal (≥0.85)	21 (75%)		26 (70.3%)			
Abdominal obesity by WHR	38 (76 %)		43 (71.6 %)		χ^2=0.264	0.608
Waist circumference (cm)						
Males	(n = 22)		(n = 23)			
No central obesity	6	27.3	13	56.5	χ^2= 3.943*	0.047*
Central obesity#	16	72.7	10	43.5		
Mean WC of males ± SD.	102.47 ±11.77		94.39 ±14.3		t=2.074*	0.044*
Females	(n = 28)		(n = 37)			
No central obesity	9	32.1	23	62.2	χ^2= 5.747*	0.017*
Central obesity#	19	67.9	14	37.8		
Mean WC of females ± SD.	97.68 ±14.2		93.11 ±10.88		t=1.417	0.163
Abdominal obesity by WC	35 (70 %)		24 (40 %)		χ^2=9.870*	0.002*
Serum leptin						
Min. – Max.	2.0 – 115.0		1.0 – 8.0		313.0*	<0.001*
Median (IQR)	48.90 (17.0 – 72.80)		4.0 (3.0 – 5.0)			
CRP						
Min. – Max.	1.0 – 18.0		0.0 – 3.0		184.50*	<0.001*
Median (IQR)	6.90 (4.10 – 11.0)		2.0 (0.0 – 2.5)			

Table 2: Correlation between obesity parameters with clinical assessment of PSA in group I (n = 50)

	BMI (kg/m²)		Waist hip ratio		WC (cm)		PBF	
	r	p	r	p	r	P	r	p
DAPSA	0.097	0.501	0.025	0.862	0.081	0.576	0.283*	0.046*
TJC	0.241	0.092	-0.096	0.507	0.106	0.463	0.211	0.142
SJC	0.047	0.746	-0.161	0.265	-0.009	0.953	0.245	0.086
VAS	0.154	0.285	0.041	0.776	0.146	0.310	0.376*	0.007*
HAQ	0.094	0.515	0.226	0.114	0.184	0.202	0.153	0.289

t: Student t-test
c²: Chi square test
U: Mann Whitney test
r: Pearson coefficient
IQR: **Inter quartile range**
p: p value for comparing between the studied groups
*: Statistically significant at p ≤ 0.05

Conclusion

From the present study it could be concluded that:

- PsA patients with high PBF have more sever psoriatic arthritis.
- In PsA patients, it is better to assess obesity by PBF not by BMI.
- Patients with PsA are more likely to have central obesity.
- PsA patients have higher CRP and leptin hormone than healthy subjects.