Comparison of Disability and Quality of Life in Rheumatoid and Psoriatic Arthritis

KATHARINA B. SOKOLL and PHILIP S. HELLIWELL

ABSTRACT. ***Objective.*** There is controversy about the severity of peripheral psoriatic arthritis (PsA) compared to rheumatoid arthritis (RA). Early reports found PsA to be a milder disorder, excepting the mutilans form. Recent reports suggest that PsA can be as severe as RA. We compared severity, disability, and quality of life in patients with PsA and RA matched primarily for disease duration.

Methods. Data relating to the extent and severity of disease were recorded in a hospital clinic setting. Recent radiographs of hands and feet were read blinded to diagnosis, and information on function and quality of life was collected with the Health Assessment Questionnaire (HAQ) and EuroQol-5D, respectively.

Results. Forty-seven patients were matched for disease duration (median PsA 5 yrs, RA 7 yrs). The male/female ratio was 24/23 for PsA, 16/31 for RA, and median ages were 45 and 51 years, respectively. Patients with RA had significantly more joint involvement of metacarpophalangeal joints and wrists, whereas distal interphalangeal joints, spine, sternoclavicular joints, and sacroiliac joints were significantly more involved in PsA. No difference was found regarding Ritchie Articular Index, inflammatory markers, HAQ score, or EuroQol-5D. Patients with RA had significantly more damage on radiographs of hands and feet: median (range) Larsen score hands PsA 8 (0–91), RA 38 (0–125); feet PsA 4 (0–34), RA 11(0–56). Patients with RA were taking significantly more disease modifying drugs.

Conclusion. Peripheral joint damage is significantly greater in RA than in PsA after equivalent disease duration, but function and quality of life scores are the same for both groups. The additional burden of skin disease in PsA may account for this. (J Rheumatol 2001;28:1842–6)

Key Indexing Terms:
PSORIATIC ARTHRITIS RHEUMATOID ARTHRITIS RADIOLOGY
DISABILITY QUALITY OF LIFE

Wright first described the distinguishing features of the inflammatory arthritis associated with psoriasis[1]. Wright also described the differences between psoriatic arthritis (PsA) and rheumatoid arthritis (RA) and emphasized that PsA was a milder disease, in terms of articular erosions, than RA[2,3]. Further reports also suggested that PsA was a milder disease, but some of these are flawed by the lack of appropriate matching for disease duration[4,5].

More recently the accepted view of PsA as a mild arthropathy has been challenged[6,7], suggesting that impairment and disability in PsA can be as severe as other arthropathies such as RA. However, neither of these articles looked at a cohort matched for disease duration.

We compared disease severity, disability, and quality of life in patients with PsA and RA primarily matched for disease duration.

From the Department of Rheumatology, St. Luke's Hospital, Bradford, and the Rheumatology and Rehabilitation Research Unit, University of Leeds, Leeds, UK.

K.B. Sokoll, MD, MRCP, Specialist Registrar, Department of Rheumatology, St. Luke's Hospital; P.S. Helliwell MD, PhD, FRCP, Senior Lecturer in Rheumatology.

Address reprint requests to Dr. P.S. Helliwell, Rheumatology and Rehabilitation Research Unit, University of Leeds, 36 Clarendon Road, Leeds LS2 9NZ United Kingdom. E-mail: p.helliwell@leeds.ac.uk

Submitted July 21, 2000 revision accepted February 27, 2001.

MATERIALS AND METHODS

Matching. The main matching criterion was disease duration using the following groupings: 0–1, 1–5, 5–10, 10–20, 20+ years. Patients were seen in a clinic setting in a district hospital. This clinic receives referrals from primary care physicians but not from other hospitals. Consecutive patients with PsA and RA were selected. Patients with pure spondylitic involvement were excluded from this study. Recruitment was halted after 52 patients with PsA were assessed. The patients with RA were then matched to this group on the basis of disease duration and secondarily on the basis of age and sex, but it was only possible to match 47 patients using the above criteria. Patients were excluded if they were not fluent in English (questionnaires available in English only).

Definitions. RA was defined according to the revised American Rheumatism Association (ARA) criteria from 1987[8]. PsA was defined as an inflammatory arthritis with involvement of ≥ 1 joint for ≥ 3/12 in a patient with psoriasis or with a first degree relative with psoriasis (modified from Moll and Wright, 1976[9]). Patients with PsA had to be rheumatoid factor (RF) negative. Dactylitis was defined as the involvement of a whole digit with pain, swelling, and erythema. Enthesopathy was defined as pain or bony swelling at the site of the Achilles tendon insertion.

Assessment. Patients were clinically assessed for extent of skin involvement (mild/moderate/severe), nail involvement, joint count (soft tissue/bony swelling, range of movement, deformities), pattern of joint involvement (PsA only), and Ritchie Articular Index[10].

Radiological assessment consisted of recent radiographs of hands and feet (within the last 12 mo) read blinded to diagnosis using the Larsen score[11]. Distal interphalangeal (DIP) joints were not included in the Larsen scores.

Laboratory assessment included RF, erythrocyte sedimentation rate (ESR), or PV. To simplify analysis the plasma viscosity (PV) was later converted to ESR using an algorithm[12].

Patients were asked to fill in forms for the Health Assessment Questionnaire (HAQ) score adapted for use by British patients[13], including a visual analog scale (VAS) for pain. The HAQ scale asks questions about function using 8 domains: dressing and grooming, rising, eating, walking, hygiene, reach, grip, and activities. Patients have a choice of 4 responses to each question, scored 0–3. The maximum scores in each domain are summed and the total is divided by the number of domains answered, giving a final score from 0 to 3. The VAS consisted of a horizontal line with the question, "How much pain have you had because of your illness in the past week?" The extremes of this horizontal VAS were marked "No pain" and "Very severe pain." The VAS scale was 85 mm long. This was scored by measuring the distance from the left end to the patient's mark in mm and then multiplying by 0.2, giving scores from 0 to 17. The EuroQol-5D was administered to assess function and quality of life[14]. The EuroQol-5D comprises the following domains: Mobility, self-care, usual activities, pain/discomfort, and anxiety/depression, which are scored as either 1 (no problems), 2 (some problems), or 3 (unable to do/extreme pain/extremely depressed). A total EuroQol-5D score is then calculated using an algorithm: 243 possible health states are so defined, with a range from –0.59 (worst) to 1.0 (best). A perception of "own health state" VAS is also part of the EuroQol-5D but is scored separately. The anchors for this 100 mm vertical VAS are "Worst imaginable health state" (0) and "Best imaginable health state" (100); the score is obtained by measuring the distance from the bottom of the scale to the patient's mark in mm.

The Steinbrocker index[15] was also used as a guide to severity. Current medication was recorded and a note was made of the patient's working status. Comparisons between RA and PsA were made using nonparametric statistics: Mann-Whitney U and chi-square tests. Bonferroni correction was applied for multiple comparisons in Table 5 only. Multivariate regression using HAQ score as the dependent variable, and arthritis type, duration, age, and sex as independent variables, was performed using the method "ENTER" where all variables are entered simultaneously.

RESULTS

Matching. Demographic data are shown in Table 1. Patients were well matched for disease duration. Patients with RA were generally older, and about two-thirds were female, whereas the gender mix in the PsA group was about half each, and the patients tended to be younger. These differences were not significant.

Clinical findings. Characteristics of patients with PsA. Thirty-one patients (66%) reported dactylitis at some stage; 17 patients (36.2%) had heel enthesopathy; and 44 patients (93.6%) had nail involvement.

A symmetrical polyarthritis was most frequently seen (33 patients, 70.2%), followed by oligoarthritis (10 patients, 21.3%), and asymmetrical polyarthritis in 2 (4.3%). Disease limited to DIP only was seen in one patient (2.1%). One patient had arthritis mutilans (2.1%). A history or clinical evidence of sacroiliitis was found in 10 patients; 5 had asymmetrical and 5 symmetrical disease. Definite radiological changes of spondylitis (including sacroiliitis) were found in 6 patients.

The extent of skin involvement was mild in 30 patients (63.8%), moderate in 9 (19.1%), and severe in 8 (17%). Plaque-psoriasis was most commonly seen with 41 patients (87.2%); 2 patients (4.3%) had pustular psoriasis. The scalp was affected in 41 patients (87.2%).

Joint counts. Comparison of joint counts of the 2 groups showed more common involvement of metacarpophalangeal (MCP) joints (70% vs 37%) and wrists (84% vs 43%) in the RA as opposed to more common involvement of DIP joints (80% vs 42%). Both groups had similar occurrences of spinal pain (11 in RA, 16 in PsA), but spinal stiffness was more common in PsA (14 vs 4 patients with RA). Comparison between RA and the subgroup of patients with PsA who had definite radiological changes of spondylitis showed no difference in the disability and quality of life assessments. Involvement of the remaining joints (temporomandibular joint, cervical spine, shoulders, elbows, hips, knees, ankles, metatarsophalangeal, proximal interphalangeal) was similar in the 2 groups. Ritchie Articular Index scores were not significantly different between the 2 groups: RA median 4 (range 0–40), PsA median 2 (range 0–35).

Medication. Table 2 shows the comparison of medication between the 2 groups. The most striking difference is that patients with RA were taking significantly more disease modifying drugs (DMARD) than patients with PsA ($p = 0.0001$). For RA, 20 patients were taking one DMARD (42.6%) but 19 (40.4%) were taking 2; in PsA, 24 patients were taking one DMARD (51.1%), only one patient (2.1%) was taking 2.

Radiological findings. Patients with RA were found to have significantly higher Larsen scores. The median score for hands for RA was 39 (range 0–125), for PsA 8 (range 0–91; $p = 0.001$). The median score for feet for RA was 11 (range 0–56) and for PsA 4 (0–34; $p = 0.003$).

ESR. Comparison of markers of inflammation (ESR) showed no difference between the 2 groups (RA median ESR 32.4, range 1–135; PsA median ESR 27.7, range 2–116).

Disability and quality of life. Table 3 gives the scores for the HAQ, EuroQol-5D, Steinbrocker, and work status. No significant difference between groups was found for the HAQ score, although the scores for patients with PsA were

Table 1. Comparison of age, sex, and duration between the RA and PsA groups.

	RA	PsA	Statistic*	p
Duration, yrs				
Median	7	5	–0.64	0.54
Mean	9.5	9.6		
Range	0.5–46	0.25–36		
Age, yrs				
Median	51	45	–1.84	0.06
Mean	51.2	45.2		
Range	25–78	17–73		
Sex				
Male	16	24	2.79	0.10
Female	31	23		

*Duration and age, Mann-Whitney z score; sex, chi-squared.

Table 2. Comparison of drugs taken.

	RA	PsA	Statistic*	p
DMARD (%)				
None	8 (17)	22 (47)		
1 DMARD	20 (43)	24 (51)		
2 DMARD	19 (40)	1 (2)	23.10	0.001
Hydroxychloroquine	4 (8.5)	—		
Sulfasalazine	20 (42.6)	16 (34)	0.72	0.40
Methotrexate	17 (36.2)	9 (19.1)	3.40	0.65
Gold	4 (8.5)	—		
Penicillamine	1 (2.1)	—		
Steroids	7 (14.9)	—		
Cyclosporin A	—	1 (2.1)		
Chlorambucil	1 (2.1)	—		
Azathioprine	4 (8.5)	—		
Other medication (%)				
NSAID	32 (68)	34 (72)	0.05	0.82
Simple analgesia	46 (97)	47 (100)	1.01	0.32

*chi-squared.

Table 3. Comparison of quality of life, disability, and work status.

	RA	PsA	Statistic*	p
HAQ score				
Median (range)	1.63 (0–2.9)	1.25 (0–2.6)	–1.72	0.09
HAQ pain VAS				
Median (range)	9 (0–17)	9 (0–17)	–0.32	0.75
Euroqol				
Median (range)	0.52 (–0.24–1)	0.59 (–0.24–1)	–0.63	0.53
Own Health VAS, 0–100%				
Median (range)	50 (0–88)	50 (0–85)	–0.26	0.79
Steinbrocker (%)				
Grade 1	9 (19)	19 (40)		
2	22 (47)	20 (43)		
3	16 (34)	8 (17)		
Median	2	2	–2.66	0.25
Work (%)				
Yes	18 (38)	27 (57)	13.70	0.003
Retired	26 (55)	11 (23)		
Housewife	1 (2.1)	8 (17)		
Unemployed	2 (4.3)	1 (2.1)		

* HAQ score, HAQ pain, VAS, EuroQoL-5D, own health VAS, Steinbrocker, Mann-Whitney, z score; work, chi-squared.

lower. Multivariate regression analysis using the HAQ score as the dependent variable showed the only significant predictor variable to be disease duration. The final model is given in Table 4. Looking more closely at individual categories of the HAQ score, patients with RA had significantly more difficulties with hand activities such as eating ($p = 0.006$), grip ($p = 0.01$), and hygiene ($p = 0.03$). Both groups had similar scores in the other activities of the HAQ. Scores for the EuroQol-5D and Steinbrocker were similar for both groups. A greater proportion of patients with PsA were still working.

Role of skin involvement. Table 5 shows how patients compare for disability and quality of life according to severity of skin disease. Patients with PsA in whom the skin disease was classified as mild tended to have less disability and better quality of life. The HAQ score rises from 0.81 in mild psoriasis to 1.38 in moderate and 2 in severe psoriasis. The figures for the EuroQol-5D are similar: 0.66, 0.52, and 0.37 (mild/moderate/severe). The lack of difference in terms of disability and quality of life for the groups as a whole was largely maintained when the psoriatic group was split by skin severity, although patients with mild psoriasis had significantly lower scores for the "eating," "hygiene," and "grip" subsections of the HAQ. The severity of skin involvement was not related to radiological damage as measured by the Larsen scores (median Larsen hand scores

Table 4. Multiple linear regression, with HAQ score as dependent variable and disease group, age, duration of disease, and sex as independent variables. R^2 adjusted = 0.136. Residual standard deviation = 0.787.

	Coefficient	Standard Error	p
Constant	0.996	0.565	0.081
Disease group (1 = RA, 2 = PsA)	–0.259	0.175	0.141
Age (yrs)	-2.594×10^{-4}	0.007	0.969
Duration (yrs)	2.818×10^{-2}	0.010	0.004
Sex (1 = male, 2 = female)	0.308	0.173	0.079

for mild, moderate, and severe psoriasis: 8, 30, 1; p = NS), but skin severity was related to Ritchie Articular Index scores (median RAI scores 0.5, 0, 11 for mild, moderate, severe psoriasis; p = 0.02).

DISCUSSION

The null hypothesis to be tested in this study was that disability and quality of life are similar in patients with RA and PsA providing the disease has been present for a similar period of time. We found no significant differences between these 2 groups in terms of function and quality of life. Despite this, patients with RA had more radiographic damage and were taking more DMARD than patients with PsA, suggesting greater disease severity in RA.

There may be criticism in that patients have been matched primarily according to disease duration and not also strictly for age and sex. Exact matching for age and sex would have been difficult to achieve and not necessarily desirable, in that RA and PsA are different entities manifesting themselves at different ages and with a different sex distribution. A close match might run the risk of attracting a too highly selected group of patients that may — because of their age — behave atypically, compared to a less selected cohort. Patients in the RA group tended to be older and there was a female preponderance, but this was not significant and patients were well matched for disease duration. Moreover, multivariate regression analysis showed disease duration to be the only variable significantly influencing the HAQ score.

Our data support the findings of Wright[3], who found less severe radiographic change in 121 patients with PsA compared to 91 patients with RA matched for age, sex, and disease duration. Similar data were obtained by Roberts, *et al*[4] and Nissilä, *et al*[5], although the latter group only compared 14 patients with PsA to 107 with RA. Later, Gladman, *et al*[6] looked at 220 patients with PsA and challenged the concept of PsA as a benign arthropathy. A similar conclusion was drawn by Torre-Alonso, *et al*[7]: 57% of their patients had erosive disease, with 19% fulfilling ARA criteria for functional impairment III or IV. Both Gladman, *et al* and Torre-Alonso, *et al* did not use seropositivity as an exclusion criterion and it is possible that some of their patients had RA, thus confounding the findings.

A clue to severity may be obtained from data on use of DMARD. In the study by Gladman, *et al*[6] 16% were treated with gold. These patients were found to be more likely to have evidence of joint damage. Antimalarials were used in 5%, azathioprine in 4%. Weekly methotrexate (24%) and

Table 5. Comparison of disability and quality of life according to severity of psoriasis (comparisons within psoriatic groups showed no significant differences).

	RA, median	Mild Psoriasis, median	Moderate Psoriasis, median	Severe Psoriasis, median	Statistic*	p+ (RA/mild Psoriasis)
HAQ score	1.63	0.81	1.38	2	–3.11	0.04
Dressing & grooming	1	1	1	1.5	–2.44	0.27
Rising	1	1	1	1	–2.27	0.41
Eating	2	1	1	1.5	–3.54	0.004
Walking	1	1	1	1	–1.77	1.00
Hygiene	2	1	2	2	–3.34	0.02
Reach	2	1	2	2	–2.47	0.25
Grip	1	0	1	1	–3.56	0.02
Activities	2	1	3	2.5	–3.14	0.04
HAQ pain VAS	9	8	10	9.2	–1.57	1.00
EuroQol-5D	0.52	0.66	0.52	0.37	–2.19	0.60
Mobility	2	2	2	2	–1.25	1.00
Self-care	2	1	2	2	–3.00	0.06
Usual activities	2	2	2	2	–1.91	1.00
Pain/discomfort	2	2	2	2	–0.69	1.00
Anxiety/depression	2	1	1	2	–0.75	1.00
Own health VAS (mm)	50	60	40	44	–1.27	1.00
Steinbrocker	2	1.5	2	2	–3.38	0.02

*Mann-Whitney, z score; +corrected for multiple comparisons.

oral steroids (19%) were used primarily to treat the psoriasis rather than the arthritis, and no correlation between the severity of the arthritis and their use was found. In our PsA group 34% of patients were taking sulfasalazine and 19% methotrexate; 51% of patients were taking one DMARD, whereas 2.1% took 2. In our RA group 42.6% of patients took one DMARD, but 40.4% took 2. On the whole it is difficult to compare these findings with Gladman, *et al*, as treatment protocols have changed. In this context it is worth noting that there is conflicting evidence from randomized controlled trials that the current, more aggressive treatment of PsA is superior to placebo[16,17].

We found no significant difference comparing HAQ scores. Analyzing individual components of the HAQ showed that patients with RA had significantly more problems with activities involving hand function such as eating, gripping, and hygiene. We believe this reflects the more common involvement of the MCP joints and wrists in this group.

The EuroQol-5D scores were similar between the 2 groups. It is surprising that the patients with PsA, who objectively had less severe joint disease than the patients with RA, scored similarly in terms of quality of life and function. A possible explanation for this may be the skin disease. A gradient in scores for both HAQ and EuroQol-5D was found across the skin severity groupings (Table 5). Although these differences were not significant this study may have lacked the necessary statistical power due to the relatively small numbers in the more severe skin groups. However, it is possible to speculate as to how psoriasis could affect scores on instruments measuring quality of life and disability. Severe skin disease may cause problems with self-esteem and this may be reflected in the scores for anxiety and depression subscale of the EuroQoL-5D. In addition, involvement of hands and genital areas may affect activities of self-care and hygiene.

Alternatively, a relationship between severity of skin and joint involvement may explain the observations in Table 4. However, such a relationship was not found between radiological damage and skin severity, although numbers were small and increasing Ritchie Articular Index scores were related to skin severity. The discrepancy between radiological damage and disability in PsA could also be due to the additional burden of spinal disease, but we found no evidence for this using both clinical and radiological data.

We conclude that peripheral joint damage is significantly greater in RA than in PsA after equivalent disease duration, although disability and quality of life are similar in both groups. Skin disease in psoriatic arthritis may account for this.

ACKNOWLEDGMENT

We thank Dr R.D. Melsom for permission to collect data from patients under his care.

REFERENCES

1. Wright V. Psoriasis and arthritis. Ann Rheum Dis 1956;15:348-56.
2. Wright V. Rheumatism and psoriasis. A re-evaluation. Am J Med 1959;27:454-62.
3. Wright V. Psoriatic arthritis: a comparative radiographic study of rheumatoid arthritis and arthritis associated with psoriasis. Ann Rheum Dis 1961;20:123-2.
4. Roberts MET, Wright V, Hill AGS, Mehra AC. Psoriatic arthritis. Follow up study. Ann Rheum Dis 1976;35:206-12.
5. Nissila M, Isomaki H, Kaarela K, Kiviniemi P, Martio J, Sarna S. Prognosis of inflammatory joint diseases. A three-year follow-up study. Scand J Rheumatol 1983;12:33-8.
6. Gladman DD, Shuckett R, Russel ML, Thorne ML, Schachter RK. Psoriatic arthritis — analysis of 220 patients. Q J Med 1987;62:127-41.
7. Torre-Alonso JC, Rodriguez-Perez A, Arribas-Castrillo JM, Ballina-Garcia J, Riestra-Noriega JL, Lopez-Larrea C. Psoriatic arthritis: a clinical, immunological and radiological study of 180 patients. J Rheumatol 1991;30:245-50.
8. Arnett FC, Edworthy SM, Bloch DA, et al. The American Rheumatism Association 1987 revised criteria for the classification of rheumatoid arthritis. Arthritis Rheum 1988;31:315-24.
9. Wright V, Moll JMH. Seronegative polyarthritis. Amsterdam: Elsevier/North-Holland – Biomedical Press; 1976.
10. Ritchie D, Boyle J, McInnes JM, et al. Clinical studies with an articular index for the assessment of joint-tenderness in patients with rheumatoid arthritis. Q J Med 1968;37:393-406.
11. Larsen A, Dale K, Eek M. Radiographic evaluation of rheumatoid arthritis and related conditions by standard reference films. Acta Radiol 1977;18:481-91.
12. Paulus HE, Ramos B, Wong WK, et al. Equivalence of the acute phase reactants C-reactive protein, plasma viscosity and Westergren erythrocyte sedimentation rate when used to calculate American College of Rheumatology 20% improvement criteria or disease activity score in patients with early rheumatoid arthritis. J Rheumatol 1999;26;11:2324-31.
13. Kirwan JR, Reeback JS. Stanford Health Assessment Questionnaire modified for use in British patients with rheumatoid arthritis. Br J Rheumatol 1986;25:206-9.
14. Kind P, Dolan P, Gudex C, Williams A. Variations in population health status: results from a United Kingdom national questionnaire survey. BMJ 1998;316:736-41.
15. Steinbrocker O, Traeger GH, Batterman RC. Therapeutic criteria in rheumatoid arthritis. J Am Med Assoc 1949;140:659-62.
16. Clegg DD, Reda DJ, Mejus E, et al. Comparison of sulphasalzine and placebo in the treatment of psoriatic arthritis. Arthritis Rheum 1996;39:2013-20.
17. Jones G, Crotty M, Brooks P. Psoriatic arthritis: Quantitative overview of therapeutic options. The Psoriatic Arthritis Metanalysis Study Group. Br J Rheumatol 1997;36:95-9.