

## CLINICAL REPORT

# The Prevalence of Fibromyalgia among Patients with Psoriasis

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**The aim of the present study was to investigate the prevalence of fibromyalgia and allied symptoms in patients with psoriasis. During a 3-year period from 1997 until 2000, 1269 patients were consecutively diagnosed with psoriasis. All patients were questioned about musculoskeletal symptoms and those with such symptoms were further examined according to a standardized protocol. In total 335 of 1269 patients had musculoskeletal symptoms. More women than men had such complaints, 33% versus 18.5%, respectively. As many as 13% of the women fulfilled the American College of Rheumatology 1990 (ACR-90) criteria for fibromyalgia, while 14.1% had symptoms compatible with chronic widespread pain without meeting the fibromyalgia criteria. In total, 8.3% suffered from fibromyalgia and 9% from chronic widespread pain. The results indicate that fibromyalgia and allied symptoms are frequent in female patients with psoriasis and constitute important problems with regard to disability and health-related quality of life. Only 35 of 105 patients with fibromyalgia had previously been diagnosed with psoriasis and the diagnostic label of fibromyalgia was new to 51 of them. Female patients with symptoms of psoriasis and pain seem to constitute a subgroup which deserves further studies.**

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In population studies the prevalence of fibromyalgia (FM) varies from 0.95% to 6.6% (1–3), but is much higher in diseases such as rheumatoid arthritis (4) and inflammatory bowel disease (5). One study also revealed a concomitant FM syndrome in 24% of patients with psoriatic arthritis (PsA) (4), while another study indicated that distress could be correlated with the number of fibrositic or tender points (TP) encountered in PsA (6).

FM has been disputed as a disease but has gained greater acceptance although doubt still exists. Chronic widespread musculoskeletal pain (CWP) and pain to pressure at specific sites on muscles or their insertions, called TP, are typical features in FM. These patients have neither joint destruction nor inflammation but nevertheless the syndrome does exist regardless of the presence or absence of a musculoskeletal comorbidity

(1). The patients have high levels of distress because of pain and fatigue and their personal health status is rated low. Epidemiological studies have indicated that FM is not a discrete disorder but one end of a continuous spectrum with more pain, distress and TP (7, 8). The prevalence of FM in psoriasis has never been investigated, although musculoskeletal features are frequently encountered among psoriatic patients.

The present investigation was motivated by a surprisingly high number of patients in my clinical praxis who met the criteria of FM but were unaware of concomitant psoriasis (as were their own primary physicians). These patients frequently experienced great difficulties in obtaining sickness leave, disability claims and pension because they were not believed in as no serious disease had been discovered. The aim of the present study was to determine whether FM really was more common in patients with psoriasis and whether there were any links to the musculoskeletal symptoms – enthesitis or PsA – frequently seen in these patients.

## PATIENTS AND METHODS

This study was a cross-sectional analysis of all patients consecutively diagnosed as having psoriasis between 1 January 1997 and 31 December 1999. The setting was an outpatient dermatological clinic in the Oslo area where the patients could attend spontaneously or by referral from their own primary physician. All clinical examinations were made by one experienced dermatologist who was also trained in rheumatology and the examination of FM. At the initial interview the patients were examined for psoriasis and musculoskeletal symptoms and information was gathered on the family history of such diseases. Examination of peripheral arthritis, and spinal mobility (finger-floor distance, 10 cm modified Schober, rotation and extension) were included in the clinical examination, which was performed according to a standardized protocol at the first or second interview. This included questions about the duration of psoriasis and musculoskeletal symptoms, the localization of skin lesions including nails and hair regions, and localization of muscular and/or articular pain, duration of morning stiffness of the spine, the presence of buttock pain and chest pain. Patients suspected of having osteoarthritis or PsA were referred further to an experienced rheumatologist for evaluation and treatment.

CWP was defined according to the 1990 American College of Rheumatology (ACR) criteria (9). All patients were systematically questioned about painful locations, the duration of pain for more than 3 months and whether it was affection the axial skeleton and at least two contralateral quadrants of the body above and below the waist. TP examination was performed as recommended by the ACR-90 criteria (9). Manual pressure of about 4 kg was applied with the thumb

at 18 points at nine symmetrical sites in accordance with the ACR-90 guidelines (9). Definite tenderness was present when the patient felt pain and reacted with involuntary withdrawal or verbal expression on digital pressure at the following sites: bilateral, at the suboccipital muscle insertions; bilateral, at the anterior aspects of the intertransverse spaces at C5–C7; m. trapezius, bilateral, at the midpoint of the upper border; m. supraspinatus, bilateral, at origins above the scapular spine and near the medial border; second rib bilateral, at the costochondral junction; bilateral 2 cm distal to the lateral epicondyl; bilateral, at the upper, outer gluteal quadrant; bilateral, greater trochanter; bilateral at the medial knee region proximal for the joint line. Peripheral enthesitis was diagnosed if pain and swelling was present at the Achilles tendon area or plantar fascia.

The extent of skin lesions was graded on a scale from 1 to 10; 1 indicating a few patches or nail involvement only and 10 indicating whole body involvement. The patients were requested to complete a detailed questionnaire on associated FM symptoms such as difficulties in getting to sleep, often waking up because of pain (non-restorative sleep), not feeling refreshed in the morning, general fatigue and pain during the daytime and degree of morning stiffness in axial or peripheral joints and muscles. The presence of these symptoms, as well as the intensity of pain, was marked on a 0–100 mm visual analogue scale (VAS).

A total of 1269 patients (mean age 48 years) were diagnosed as having psoriasis during the 3-year period. There were 704 (56%) women and 565 (44%) men. The patients with musculoskeletal symptoms were categorized into two groups. Group 1 included all patients who fulfilled the ACR-90 criteria for FM with at least 11 positive TP out of 18 possible and CWP, while group 2 included patients with musculoskeletal pain but not meeting the diagnostic criteria of FM. Patients who were seropositive for rheumatic factor were excluded, as were patients with skin lesions of uncertain aetiology.

#### Statistical analysis

All data were entered into an SAS database for PC. The Kruskal-Wallis test for simultaneous non-parametric comparison of several independent samples and the Wilcoxon two-sample test with normal approximation with continuity correction of 0.5 were applied for comparing the two patient groups. In the analysis of correlation Pearson's moment coefficients of correlation ( $r$ ) were chosen as:  $r < 0.25$  = poor correlation;  $0.25 < r < 0.4$  good correlation;  $r > 0.4$  high correlation. A level of statistical significance of  $p < 0.05$  was chosen.

## RESULTS

The demographic data of the psoriasis patients are presented in Table I. In total 105 patients (93 women and 12 men) fulfilled the ACR-90 criteria for FM, corresponding to 8.3% of all patients. More than 13% (93/704) of all women had symptoms compatible with FM, while the corresponding numbers for men were only 12/565 (2%). Two hundred and thirty patients (18%; 137 women and 93 men) with musculoskeletal symptoms did not meet these criteria, while 114 patients (9%; 100 women and 14 men) had CWP but not FM. The total proportion of women with musculoskeletal complaints was 230/704 (33%), in contrast to the corresponding numbers for men which were 105/565

Table I. Number, gender, age and disease characteristics of psoriatic patients with fibromyalgia (group 1) and patients with musculoskeletal complaints without fibromyalgia (group 2) in relation to the total study group of psoriasis patients

Parameter	Group 1	Group 2	Total
All patients (n)	105	230	1269
Females/males	93/12	137/93	704/565
Mean age (years)	50 (11.7)†	54 (12.6)	49.5 (12.8)
Psoriasis extent*	3.4 (1.2)	3.6 (1.5)	3.5 (1.3)
Duration (years)	5.0 (7.7)	7.8 (11.9)	5.9 (9.0)
Pain duration (years)	6.6 (7.0)	7.2 (9.1)	6.8 (7.6)

\*Score 1 to 10; 10=maximum. †Mean (SD).

(18.5%). It appeared that 100/704 (14.1%) women had CWP but did not meet the ACR-90 criteria for FM. Nine patients (7 women and 2 men) in group 2 had CWP and 1–10 TP; one woman in this group had two TP but not CWP. The only significant differences noted between the two groups were in the gender ( $p < 0.05$ ), while the mean age, extent and duration of psoriasis and pain duration were about equal.

The score for the extent of psoriasis was typically low and almost of the same order in both groups. The skin regions most frequently affected by psoriasis in the two groups were significantly different ( $p < 0.05$ ) (Table II) in the two groups. The head was more frequently affected in the group with FM, while small lesions on the trunk and extremities were more often observed in group 2. Also palmoplantar pustulosis was more frequently seen among the patients with FM. Lesions in the anogenital and umbilical regions were common in both groups. There was no correlation ( $r < 0.25$ ) between FM symptoms and the extent of psoriasis.

The diagnosis of psoriasis was new to 70 (67%) of the patients with FM and to 147 (63%) of the patients in group 2. They were referred by their primary physician due to the development of uncertain skin symptoms. Fifty-four (42%) of the patients with FM had been diagnosed as suffering from FM syndrome alone before symptoms of psoriasis developed. Twenty-one of them had first-degree relatives with psoriasis. For two patients in group 1 the diagnosis had been changed from FM to

Table II. Localization of psoriasis lesions in 105 patients with concomitant fibromyalgia (group 1) and 230 patients with musculoskeletal complaints without fibromyalgia (group 2)

Main regions	Group 1 n (%)	Group 2 n (%)
Scalp/ears/neck/face	44 (42)	79 (34)
Feet/legs/knees	21 (20)	69 (30)
Hands/fingers/elbows	14 (13.3)	93 (40.4)
Nails	21 (20)	42 (18.2)
Anogenital region/thighs	10 (9.5)	17 (7.4)
Palmo/plantar lesions	9 (8.6)	7 (3)
Trunk/umbilical area	7 (6.6)	27 (11.7)

PsA by a rheumatologist, while four patients in group 2 had previously been diagnosed as having FM but no longer met the ACR-90 criteria. Articular and muscular pain had developed prior to skin lesions in 71 (68%) patients with FM, after skin manifestations in 22 (21%) and synchronously in 12 (11%).

Peripheral enthesitis in the Achilles tendon or plantar fascia was diagnosed in 14 FM patients. Anterior chest pain was evident both anamnestically and by sternal pressure in 8 and morning stiffness lasting for 1 hour or more was reported by 28 (27%) patients. Restriction of joint motility was not a distinct sign but limited spinal movements were detected in 12%. Forty of the 105 patients with FM complained of spinal pain and were referred for rheumatological and radiological examination. Psoriatic spondyloarthritis of the cervical and lumbosacral spine was diagnosed in two of these patients while the other osteoarticular lesions were interpreted as osteochondritis and not related to psoriasis. Articular lesions such as swelling and tenderness of sternoclavicular and manubriosternal joints were observed in two patients with FM and of the acromioclavicular joint in one patient who also had pustular psoriasis of the feet. Onychopachydermoperiostitis of the left big toe was diagnosed in one of the patients with FM. Arthritis of the digital and/or carpal bones occurred in 18, sacroiliitis of minor degree in two and calcaneal spurs in another two patients with FM. Clear-cut dactylitis was not observed among the patients with FM although many complained of swollen fingers. The localizations of osteoarticular symptoms are illustrated in Table III. The findings were confirmed radiologically and by a rheumatologist.

In total 27 patients with FM were diagnosed with PsA and 16 patients with possible PsA. By comparison, only 44/230 patients (19%) with musculoskeletal complaints but without FM (group 2) were diagnosed as having

Table III. Osteo-articular localization of psoriatic arthritis in 105 patients with fibromyalgia (group 1) and in 230 patients with musculoskeletal symptoms without fibromyalgia (group 2)

Localization	Group 1 n (%)	Group 2 n (%)
Peripheral arthritis	18 (17)	19 (8.2)
Spinal involvement	2 (1.9)	16 (7)*
SC and/or MS joint	2 (1.9)	1 (0.4)
Acromioclavicular joint	1	–
Sacroiliitis	2 (1.9)	–
Dactylitis	–	1 (0.4)
Temporomandibular joint	1 (0.95)	1 (0.4)
Peripheral enthesitis	14 (13.3)†	–
Calcaneal spur	2 (1.9) †	6 (2.6)
Onychopachydermoperiostitis	1 (0.95)	–

SC, sternoclavicular; MS, manubriosternal.

\*One patient had axial and peripheral arthritis.

†These patients were diagnosed as having possible psoriatic arthritis.

PsA. Peripheral enthesitis was more frequently met with in patients with FM while spinal involvement was more common in group 2.

The questionnaire on FM-associated symptoms was completed by all 105 patients with FM and by 43/230 patients in group 2 who were randomly selected for statistical reasons to be compared with patients in group 1. Pain scores and the symptoms associated with pain are presented in Table IV. The pain scores were significantly higher in group 1 than in group 2 ( $p < 0.05$ ) and the patients with FM had higher prevalence of sleep disturbances, morning tiredness and daytime fatigue ( $p < 0.05$ ). These symptoms were strongly correlated to the degree of pain ( $r > 0.4$ ).

## DISCUSSION

In the present study it appeared that a high proportion of women with psoriasis had FM (13%) and also that a high number had musculoskeletal complaints (33%). The corresponding proportions for men were 2% and 18.5%, respectively. In a population-based study from a small community in Norway, 10.5% of women aged 20–49 years were found to suffer from FM (2), which is a high prevalence compared with the usual 2% reported from other countries (1, 3) but still significantly lower ( $p < 0.05$ ) than the 13% prevalence observed in this investigation. On the other hand, the proportion of patients with CWP in the present study was 9%, which accords with the data given in the above-mentioned reports. The present data indicate that FM occurs more frequently in patients with psoriasis than in the general population despite an approximately equal proportion of patients with CWP. Whether the data reflect a higher

Table IV. Pain status, number of tender points, and pain-associated sleep disturbances, morning tiredness and day-time fatigue expressed as means with standard deviation (SD), in 105 patients with psoriasis and fibromyalgia (group 1) and in 43 patients with psoriasis and musculoskeletal symptoms without fibromyalgia (group 2)

	Group 1 mean (SD)	Group 2 mean (SD)
Females/males	93/12	31/12
Pain*	61.1 (23.3)†	46.8 (20.3)
Females	61.7 (23.0)†	48.3 (20.2)
Males	55.6 (27.1)†	42.9 (21.3)
Number of tender points	14.7 (2.8)†	1.9 (3.1)
Females	14.9 (2.7)†	2.5 (3.4)
Males	12.8 (2.4)†	0.3 (0.9)
Difficulties in falling asleep*	44.0 (31.0)†	32.0 (30.4)
Non-restorative sleep*	51.5 (27.7)†	43.8 (28.9)
Morning tiredness*	55.3 (29.6)†	50.2 (27.2)
Daytime fatigue*	53.6 (28.0)†	46.8 (20.3)

\*Score 0–100 VAS; 100=maximum.

†Differences between the groups are statistically significant ( $p < 0.05$ ).

prevalence of FM among Norwegian women remains to be shown in further studies, which also must include patients with diagnosed psoriasis. It is quite possible that this has been overlooked in previous studies.

One point of importance may be that the present study concerned patients seen at a combined primary and secondary health care level where the patients were seeking treatment for skin diseases and not primarily for FM or rheumatic complaints. Several disorders are usually less severe in community than in clinic samples. The question of referral bias was thus greatly avoided in this investigation as the patients were primarily recruited from the general community. These circumstances may also explain the observation that the patients suffered from less severe psoriasis than is usually observed in a clinic at the third health level. It was typical that the score for the extent of psoriasis was low and almost of the same order in both groups, although it was more widespread in patients without FM. This difference was probably accidental.

Yet another potential selection bias might possibly be imposed by emotional stress from musculoskeletal symptoms influencing the perception of skin symptoms and leading patients to seek attendance which in turn would result in an over-representation of patients with musculoskeletal complaints. This bias is difficult to avoid and can probably only be eliminated by a large population study or a random sample of persons with psoriasis examined for FM. A weakness arising from such studies is that the presence of psoriasis frequently is unknown to many patients as was also observed in this investigation. A collaboration between experts in rheumatology and dermatology thus seems necessary.

An interesting observation in the present study was that 67% of the patients with FM did not know that they had psoriasis, and neither did their primary physicians. This fact can partly be explained by the sometimes limited skin lesions which frequently occurred at sites not usually examined by a doctor and that psoriasis lesions had developed after the musculoskeletal symptoms had started in 68% of the patients.

Symptoms of arthritis and peripheral enthesitis suggestive of PsA were detected in about 40% of the patients with FM and in about 20% of those with musculoskeletal symptoms without FM. Not all patients with musculoskeletal complaints were examined by a rheumatologist, which means that the number with PsA could be higher. The classification criteria for PsA of Moll & Wright (10) are still in use but new criteria are developing (11, 12). The diagnosis of PsA is difficult and the reported prevalence of PsA among patients with psoriasis varies greatly. The diagnosis of psoriasis among patients with FM and other rheumatic complaints is important since psoriasis has influence on the handling of such patients. Systemic steroid treatment is widely used but may precipitate generalized pustular

psoriasis as well as a rebound phenomenon when the treatment is tapered off. As PsA may have many symptoms in common with FM (4, 6) it seems important to be aware of psoriasis in patients suffering from FM or CWP.

More extensive pain was associated with an increasing number of TP, while FM-associated symptoms like sleep disturbances, tiredness and fatigue were highly correlated with pain in both groups ( $r > 0.4$ ). It was characteristic for the patients to attribute their sleep disturbances to pain experienced at specific sites.

Muscular and articular complaints in psoriasis have been termed 'algic psoriasis' or 'deep K bner phenomenon' (13). This occurs frequently in the absence of clinical signs of arthritis and is not related to the degree of psoriasis. It is tempting to speculate that the deep-seated pain experienced in the muscles and bone by these patients is in some way related to the pain felt by psoriasis patients with FM and also by those who do not fulfil the criteria of FM.

The high prevalence of FM among women with psoriasis is corroborated by a recent population study in Norway on more than 1000 patients with FM where 9% of the patients stated that they suffered from psoriasis (H. Stormorken, Research Institute for Internal Medicine, Rikshospitalet, University of Oslo, personal communication). This is four times higher than the usual frequency of 2%.

Taken together, the results indicate that musculoskeletal symptoms, whether or not they fulfil the criteria of FM, constitute important problems in patients with psoriasis. A Nordic study on quality of life and prevalence of reported PsA (14) showed that particularly Norwegians had a high arthritis disability index and high prevalence of PsA. A high prevalence of PsA was, however, also demonstrated in two recent Swedish investigations (11, 12). A large proportion of psoriatic patients with musculoskeletal complaints probably do not have PsA according to the criteria of Moll & Wright (10) or the Swedish criteria, but they seem to constitute a subgroup, which eventually may develop into PsA or FM in several cases. In evaluating quality of life in psoriasis it seems mandatory to take such symptoms into account also in the absence of PsA. There is a considerable overlap of symptoms in FM and PsA (6) and the present study indicates that psoriasis and PsA may have been overlooked in many FM patients.

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