

# Clinical Profile of Rheumatic Disease Patients Referred to a Multidisciplinary Pain Center

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**ABSTRACT. Objective.** Good pain control is a prerequisite for success in the management of many rheumatological diseases. However, some rheumatology patients may present challenges in terms of pain management and be subsequently referred to a specialized pain clinic. We examined the characteristics and assessed the outcome of patients with rheumatic diseases who were referred to a tertiary care pain center.

**Methods.** All new patients with a primary rheumatological diagnosis referred over a 9 year period to the McGill University Pain Centre were studied. Patients were identified through a computer search according to both diagnoses and symptoms. Demographic information, clinical and pain characteristics, and subsequent management and final outcome were assessed.

**Results.** Out of a total of 1120 new patients, 60 (5%) had a primary rheumatologic diagnosis to account for pain and referral. The diagnoses were as follows: fibromyalgia in 26 (43%), inflammatory arthritis 17 (28%), degenerative arthritis 9 (15%), and soft tissue rheumatism 8 (13%). The median age at presentation was 52 years and 47 (78%) were female. The median duration of pain was 5 years. The mean pain scores according to the McGill Pain Questionnaire and the visual analog scale were  $27 \pm 15$  and  $7 \pm 2$ , respectively. Patients were followed a mean duration of  $10.6 \pm 15$  months. Seventy-two percent were assessed by a psychologist and 52% by a physiotherapist or occupational therapist. New pharmacologic treatments were prescribed for 47 (78%) patients, with 47% receiving opioids, 37% antidepressants, 12% nonsteroidal antiinflammatory drugs, 8% tranquilizers, and 18% other medications. Final outcome was described as follows: improved in 55%, no change in 43%, and worsened in 2%.

**Conclusion.** Although patients with a primary rheumatologic process to account for pain constituted a small proportion of patients evaluated, improvement was considerable in over half. Further study should address the selection of patients that are most likely to benefit from referral to multidisciplinary pain centers and the longterm outcome of such interventions. (*J Rheumatol* 2004;31:359–63)

## Key Indexing Terms:

PAIN MULTIDISCIPLINARY ASSESSMENT RHEUMATIC DISEASES EPIDEMIOLOGY

Rheumatological pain is an important cause of suffering in the population at large as well as in the clinic setting. The increasing appreciation that chronic nonmalignant pain has a major impact upon quality of life has brought this symptom into the awareness of the medical as well as the lay community. Epidemiological studies indicate that between 15 and 20% of the population suffers from arthritis, the major symptom of which is pain<sup>1,2</sup>. The extent to which the symptom of pain in arthritic disease is being addressed is, however, not known.

Over the last decade multidisciplinary pain centers have been established to assist in the management of patients

with challenging painful conditions. The numbers and characteristics of patients with rheumatic diseases that are being evaluated in such pain centers are not known. It is possible that less attention has been paid to the specific symptom of pain in the rheumatic diseases in the light of recent advances toward the management of the inflammatory disease process.

Our aim was to describe the prevalence of rheumatic diseases among patients referred to a multidisciplinary pain center, to examine patient characteristics, record treatments received, and assess outcome as a result of the referral.

## MATERIALS AND METHODS

All patients with a primary rheumatological diagnosis referred to the McGill University Pain Centre between January 1993 and December 2001 were eligible for study. Patients attending the pain center were evaluated in a standardized way. At the initial visit a questionnaire addressing demographic and disease information and the symptom of pain was completed. Questionnaire data were entered into a database (Microsoft Access 2.0). Patients were evaluated by different physicians with various areas of expertise and experience working in the pain center. Diagnoses were accepted as those of the referring physician. All patients were assigned diagnostic categories according to the IASP Classification of Chronic Pain<sup>3</sup>. There was no rheumatologist specifically evaluating patients at the center, but access to

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rheumatology consultation was available within the hospital system. The patients' subsequent management was determined by a consensus of a pain management group comprising physician, psychologist, nurse clinician, and either a physiotherapist or an occupational therapist where applicable. No baseline investigations were routinely requested as patients had mostly already been fully investigated and were referred to the pain center specifically for management of pain.

Rheumatology patients were identified by the following method. A computer search using IASP classification codes for rheumatological disorders (for example, axis II = 30, axis V = 0.03, 0.06, 0.08) generated a group with diagnostic categories compatible with rheumatic diseases. In addition, a text search of the database for descriptive symptoms recorded by the patient at the time of initial visit was performed. The following words were used for the text search: arthritis, osteoarthritis (OA), rheumatoid arthritis (RA), musculoskeletal pain, rheumatic disease, bone pain, bursitis, tendonitis, connective tissue disease, spondyloarthritis (SpA), fibromyalgia (FM), diffuse pain syndrome, inflammatory joint or spinal pain. The medical records of all patients identified by both computer generated searches were reviewed by a research assistant. Where inconsistencies were found between the patient questionnaire and the medical records, a rheumatology staff member (MAF) was asked to resolve the issue. After the validation procedure, a final study group was identified. All patients with a diagnosis of arthritis, rheumatological problem, connective tissue disease, joint pain, musculoskeletal pain, or bone pain were considered to be rheumatic disease patients. Excluded were patients presenting with mechanical spinal pain including neck pain and lower back pain.

Demographic information included age, sex, employment status, diagnosis, and duration of symptoms. Pain characteristics at the time of the first pain center visit included the following: Pain severity was recorded as usual pain, highest and lowest pain intensity in the past week using a 10 cm visual analog scale (VAS; 0 = no pain, 10 = worst possible pain). Pain quality was measured using the McGill Pain Questionnaire (MPQ)<sup>4</sup>. This is a validated questionnaire comprising 78 descriptor words arranged into 20 subgroups and measuring the sensory, affective, evaluative, and miscellaneous components of pain<sup>4</sup>. Patients were asked to circle the word from each subgroup that most accurately described their pain. The total MPQ intensity score was calculated by summing the total number of words weighted by each word's rank order within its subcategory. Sleep related problems were recorded as present if the patient responded with "usually" or "always" for the following: sleep onset difficulty, night awakenings, early awakenings, and use of sleep medications. Information regarding management at the pain center included the total number of physician visits at the pain center and record of assessment or treatment by a psychologist or physiotherapist. The total duration of followup at the pain center was recorded in months. New therapies introduced were recorded as pharmacologic, physical, or other. The outcome was determined *post hoc* by categorizing the overall status according to the physicians' notes at the last recorded visit to the pain center as no change in pain, improved, or deteriorated. However, no formal outcome measure was routinely recorded at the time of the clinical evaluation of the patient.

Data were summarized as means and standard deviations for normally distributed variables and medians with interquartile range for skewed distributions. For comparison between groups, the Mann-Whitney test was used for nonparametric data, Student t tests for parametric data, and chi-square tests for categorical data. Significance was set at the 5% level, and all tests were 2-sided. Analyses were performed using Stata version 6.0 (Stata, College Station, TX, USA).

## RESULTS

A total of 1120 patients were indexed in the database during the study period January 1993 to December 2001. The initial search using the IASP classification codes identified 196 possible subjects. The second search using descriptive disease terms yielded 71 subjects. All charts of patients

identified by either one or both search mechanisms were reviewed. Sixty patients (5% of the total patients) with a primary rheumatological disease as the reason for referral to the pain center were eligible for study. Demographic information and rheumatic diagnosis for the study group are shown in Table 1. FM was the most common rheumatologic diagnosis, in over one-third of the group. Two patients were indexed with a diagnosis of both OA and FM, but were assigned to the FM group and OA group for one each as the predominant cause for pain. SpA was the most common inflammatory condition, diagnosed in 10 patients, 6 patients having RA and one myositis. The only demographic difference between groups was a significantly longer disease duration in the FM group compared to the soft tissue rheumatism group, 7.5 versus 2.5 years ( $p = 0.01$ ).

**Symptom characteristics.** Pain characteristics and sleep related information are shown in Table 2. The mean pain score for usual, highest, and lowest pain in the preceding week was similar across each of the 4 disease groups. The patients with OA scored highest on all components of the MPQ, and the group categorized as having soft tissue rheumatism showed the second highest scores.

Two-thirds of patients reported sleep related complaints and sleep medications were being used by more than one-third of the patient group. Difficulty with sleep onset was reported by 57%, night awakenings by 65%, and early awakenings by 41%. Details of sleep difficulty according to the diagnostic categories are shown in Figure 1.

**Management at the pain center and outcome.** Table 3 describes management of patients at the pain center. Almost three-quarters of the group were assessed by a psychologist and 30% received additional psychological treatment, which was mostly by means of a pain management group. Almost all of the 52% of patients assessed by a physiotherapist or occupational therapist continued to receive additional treatment by these health care professionals. Opioid medications were the most frequently prescribed new pharmacologic

Table 1. Demographic and disease characteristics of 60 rheumatic disease patients referred to a multidisciplinary pain center.

Median age, yrs (IQR)	52 (46–69)
Female, n (%)	47 (78)
Employment status (in 47), n (%)	
Employed	14 (30)
Not employed (due to pain)	20 (43)
Not employed (other reason)	2 (4)
Retired	11 (18)
Rheumatology diagnosis, n (%)	
Fibromyalgia	26 (43)
Inflammatory arthritis	17 (28)
Degenerative arthritis	9 (15)
Soft tissue rheumatism	8 (13)
Median duration of pain, yrs (IQR)	5 (2.3–9.5)

IQR: interquartile range.

Table 2. Pain and sleep information for 60 patients with rheumatological complaints. Values are expressed as number of patients (%) or mean  $\pm$  SD.

Pain in Past Week	Total Group, n = 60	FM, n = 26	Inflammatory Arthritis, n = 17	OA, n = 9	STR, n = 8
VAS (1–10)					
Usual pain	7.2 $\pm$ 2.0	7.1 $\pm$ 2.0	7.2 $\pm$ 1.3	7.4 $\pm$ 0.5	7.1 $\pm$ 2.3
Highest pain	8.5 $\pm$ 1.6	8.2 $\pm$ 2.0	8.0 $\pm$ 1.3	8.5 $\pm$ 1.4	9.0 $\pm$ 1.3
Lowest pain	5.1 $\pm$ 2.4	5.2 $\pm$ 2.4	5.4 $\pm$ 1.3	4.1 $\pm$ 3.1	5.2 $\pm$ 2.6
MPQ					
Overall	27.3 $\pm$ 15	23.6 $\pm$ 12.8	20.9 $\pm$ 15.4	37.2 $\pm$ 15.9	31.5 $\pm$ 14.4
Sensory	16.0 $\pm$ 9.0	14.4 $\pm$ 8.0	13.2 $\pm$ 9.2	21.4 $\pm$ 9.1	17.2 $\pm$ 8.6
Affective	3.9 $\pm$ 3.3	3.2 $\pm$ 3.0	1.5 $\pm$ 1.6	6.2 $\pm$ 3.3	4.9 $\pm$ 3.4
Evaluative	2.0 $\pm$ 2.1	1.3 $\pm$ 1.9	2.6 $\pm$ 2.3	2.4 $\pm$ 2.0	2.7 $\pm$ 2.0
Miscellaneous	5.4 $\pm$ 3.8	4.6 $\pm$ 3.0	3.5 $\pm$ 4.4	7.2 $\pm$ 4.3	6.7 $\pm$ 3.8

FM: fibromyalgia, OA: osteoarthritis, STR: soft tissue rheumatism, VAS: visual analog scale in mm, MPQ: McGill Pain Questionnaire.

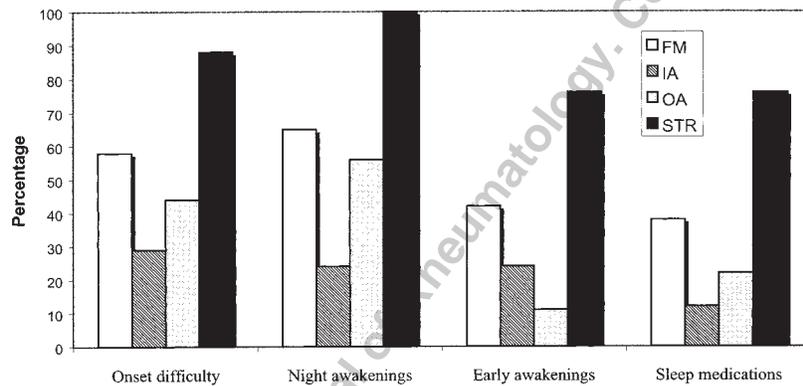


Figure 1. Sleep related problems in study patients. FM: fibromyalgia, IA: inflammatory arthritis, OA: osteoarthritis, STR: soft tissue rheumatism.

Table 3. Management at pain center. Values are expressed as number of patients (%) or mean  $\pm$  SD.

Mean duration of followup, mo	10.6 $\pm$ 15
Mean number of visits	4 $\pm$ 6.2
Assessment by	
Psychologist	43 (72)
Physiotherapist/occupational therapist	31 (52)
New treatments prescribed	
Pharmacologic	
Opioids	47 (78)
Antidepressants	28 (47)
NSAID	22 (37)
Tranquillizers	7 (12)
Others	5 (8)
Others	11 (18)
Physical treatments	
Local injections	15 (25)
Acupuncture/chiropractor	14 (23)
TENS	12 (20)
Others	10 (17)
Psychology treatment	18 (30)

NSAID: nonsteroidal antiinflammatory drugs, TENS: transcutaneous electrical nerve stimulation.

treatment (47%), whereas 18% received some other medication, mostly in the category of an anti-epileptic medication used as a pain modulator. A quarter of patients were prescribed some physical treatment, including local injections, acupuncture, transcutaneous electrical nerve stimulation (TENS), and manipulation/massage. The outcome could be ascertained in 56 patients and was assessed as improved in 31 (55%), no change in 24 (43%), and worsened in one (1.8%).

## DISCUSSION

This is the first study describing a profile of rheumatology patients referred to a multidisciplinary pain center. Pain centers are now recognized as having positive effects upon the management of difficult and complex painful conditions<sup>5</sup>. Although physicians are becoming more accustomed to pharmacological management of pain in the nonmalignant setting, interventions that may be offered in a multidisciplinary setting may be less familiar or accessible to physicians working outside such centers. Although

rheumatic diseases constituted a relatively small proportion of all patients referred, FM diagnosed in over 40% was disproportionately the most common rheumatic condition identified, and SpA, present in 17%, was the most common diagnosis within the group of inflammatory diseases. In contrast, FM and SpA generally represent in the order of 10% and 4%, respectively, of patients seen in the rheumatology clinic setting<sup>6</sup>. The overrepresentation of these 2 conditions likely reflects a poor response to standard medical care, particular treatment challenges to physicians, and subsequent referral to a multidisciplinary pain center, with the specific symptom of pain identified as an important feature.

As the numbers of patients in each disease category were small, we are unable to draw any firm conclusions regarding demographic characteristics of our patients within specific disease types, but overall, the profile of patients showing a female predominance in the middle years of life was similar to those seen in rheumatology clinics<sup>6</sup>. It is, however, noteworthy that over 40% of patients reported unemployment due to the specific symptom of pain. As pain was identified as an important factor influencing employment, attention to control of this symptom may favorably affect overall outcome in the management of rheumatic diseases.

The patients in this study reported surprisingly high levels of pain intensity as measured on the VAS for patients with chronic and prolonged disease, but pain intensity was similar across all 4 subcategories of rheumatology patients. It is generally accepted that a pain score above 7, which was the mean score for "usual pain" in this study, represents severe pain that sufficiently intrudes upon consciousness to affect normal functioning<sup>7</sup>. The results for the MPQ for the FM and inflammatory arthritis group are in agreement with others' reports, but the values recorded by patients with OA and soft tissue rheumatism are greatly elevated<sup>8</sup>. It is probable that patients with more resistant pain would have been referred to a pain center and therefore the patients described represent a subset with a greater pain experience. In this small preliminary study we were unable to identify characteristics of the pain center rheumatology patients that might have differentiated them from the usual clinic rheumatology patient. Further study should be directed toward identifying patient characteristics within disease categories associated with a greater pain experience. The finding that sleep related problems were common highlights the significance of insomnia as a major problem in patients with chronic pain. It has been estimated that up to 70% of patients attending a specialty pain clinic report impaired sleep<sup>9</sup>. However, other factors such as depression and anxiety may also contribute to the development of insomnia. Future research should attempt to explore the full extent of this relationship as well as treatment modalities.

Although this study was not specifically designed to evaluate the outcome of individual patients or efficacy of a

pain center intervention, at least half the patients reported a benefit from the clinic contact. The outcome measurement was a simple subjective response as recorded by the physician, without measurements of quality of life, functional status, or change in employment status, all important measures in assessment of efficacy of an intervention. As would be expected from a multidisciplinary pain center, patients were offered a variety of treatments that included pharmacologic as well as other interventions. Almost half the patients were prescribed opioid medications, suggesting either reticence on the part of the referring physician to prescribe these medications or a greater freedom of use within a pain center setting. In keeping with the multidisciplinary philosophy of a pain center, it is not surprising that most patients underwent a psychological assessment and at times a program of management, as well as being prescribed some intervention other than purely pharmacologic treatments. We are unable to comment on efficacy of each individual treatment, but believe that the combination of interventions contributed to the favorable outcome. Treatments such as acupuncture, chiropractor treatment, and TENS are often considered out of the mainstream of standard medical care, but may also have affected outcome positively.

Several limitations of this study deserve discussion. Our data are derived from a retrospective chart review, information regarding pain was by self-report, and outcome, which was relatively short, was ascertained by chart review. Physicians working in the pain center had training in different disciplines and there was no consultant rheumatologist specifically assigned to the pain center during the study period. It is thus possible that treatment recommendations may have been influenced by the expertise of physicians attending at the time. As there was no grading of the severity of the rheumatic disease by disease-specific functional questionnaires, we are unable to make any statement regarding the relationship between severity of disease and complaint of pain. Additionally, the study was not designed to identify disease-specific characteristics leading to referral.

We set out to describe the profile of rheumatic disease patients referred to a multidisciplinary pain center and have offered some hypotheses regarding our observations. The reported improvement in over half of the rheumatology patients attending this pain center is encouraging and emphasizes the importance of pain in the rheumatic diseases. Further study will be required to determine whether specific individual components of the multidisciplinary approach carry particular weights or whether the total composite treatment intervention is necessary for a favorable outcome. As multidisciplinary clinics are both time-consuming and costly, there is a need for well designed and standardized evaluation of patients as well as valid outcome measures to test effectiveness and indications in patient management. Future studies should also address the selec-

tion of patients most likely to benefit from referral to these centers. The results of this preliminary exploratory study are encouraging, although the longterm outcome remains unknown.

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