

Classification of chronic pain at a multidisciplinary pain rehabilitation clinic

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OBJECTIVE: To make a detailed diagnostic analysis of patients with chronic pain syndromes, including classification according to the International Association for the Study of Pain (IASP).

DESIGN: Descriptive study of consecutive referrals during a two-year period.

SETTING: A multidisciplinary out-patient pain clinic focused on occupational rehabilitation.

SUBJECTS: A total of 309 chronic pain patients.

METHODS: After a standardized multimodal physical and psychological examination, the chronic pain syndrome of each patient was assigned one or more clinical diagnoses; assigned to an etiological pain category (nociceptive pain, non-nociceptive including idiopathic pain, and psychological pain); and coded diagnostically according to IASP taxonomy.

RESULTS: In all, 397 clinical diagnoses were made (ie, a mean of 1.3 diagnoses per patient). A large majority (87%) received a diagnosis of myalgia. Myofascial pain (trigger point syndrome) was diagnosed in two-thirds of the patients and was the most frequent clinical pain syndrome. A total of 51.8% of the pain syndromes were categorized as nociceptive, 43.0% as idiopathic and less than 1% as pain of psychological origin. Classification using the IASP system yielded a very high proportion of nociceptive, musculoskeletal pain syndromes of high intensity, with widespread pain and/or pain located in the neck/shoulder/arm region, and of dysfunctional etiology.

CONCLUSIONS: Musculoskeletal pain was very common in this series, and myofascial pain syndromes were the most frequent specific pain disorders. However, myofascial pain had generally

gone unrecognized by the referring physician. In contrast to findings of other studies, the incidence of low back pain and of primary psychological pain was low. Comparison of the results with those of Swedish epidemiological surveys showed the frequencies of the diagnoses in this series to be representative of chronic pain syndromes in the Swedish general population.

Key Words: *Chronic pain, Diagnostic classification, Dysfunctional pain, International Association for the Study of Pain (IASP) taxonomy, Myofascial pain, Psychogenic pain*

Classification de la douleur chronique dans une clinique pluridisciplinaire de réadaptation à la douleur

OBJECTIF : Faire une analyse détaillée du diagnostic des patients atteints de syndromes douloureux chroniques y compris une classification selon l'International Association for the Study of Pain (IASP).

MODÈLE : Étude descriptive d'une série de patients adressés à la clinique pendant une période de temps de deux ans.

CONTEXTE : Clinique externe pluridisciplinaire spécialisée en ergothérapie.

SUJETS : 309 patients atteints d'un syndrome douloureux chronique.

MÉTHODES : Après un examen physique et psychologique plurimodal normalisé, on a attribué un ou plusieurs diagnostics cliniques au syndrome douloureux chronique de chaque patient puis, on l'a assigné à une catégorie étiologique de la douleur (douleur nociceptive, douleur non nociceptive y compris la douleur idiopathique, et douleur psychologique) et on lui a attribué un code de diagnostic selon la taxonomie de l'IASP.

RÉSULTATS : Au total, on a posé 397 diagnostics cliniques (soit, une moyenne de 1,3 diagnostic par patient). La plupart (87 %) on reçu un

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diagnostic de myalgie. Une douleur myofasciale (syndrome des zones gâchettes) a été diagnostiquée chez les deux tiers des patients et s'est révélée le syndrome douloureux le plus fréquemment observé. Un total de 51,8 % des syndromes douloureux ont été classés dans la catégorie noniceptive ; 43,0 % dans la catégorie idiopathique et moins de 1 % comme douleur d'origine psychologique. Une classification selon le système de l'ISAP a fourni une très forte proportion de syndromes douloureux nociceptifs et musculosquelettiques de forte intensité, avec une douleur étendue et/ou une douleur localisée dans la région du cou, de l'épaule ou du bras, et d'une étiologie de dysfonction.

CONCLUSIONS : La douleur musculosquelettique était très fréquente dans cette série de patients, et les syndromes de douleur myofasciale étaient les affections douloureuses spécifiques les plus fréquentes. Cependant, la douleur myofasciale n'avait, en général, pas été reconnue par le médecin qui avait adressé le malade à la clinique. Par rapport aux résultats des autres études, l'incidence de la douleur lombaire et de la douleur psychologique primaire était faible. Une comparaison des résultats avec ceux des enquêtes épidémiologiques suédoises révèle que la fréquence des diagnostics posés dans cette série est représentative des syndromes douloureux chroniques dans la population suédoise en général.

Clinical research on chronic pain syndromes is characterized by much controversy and little general agreement. One issue concerns the problems of pain diagnosis and classification as exemplified by the continuing difficulty in distinguishing nociceptive, usually musculoskeletal, pain from psychogenic pain disorders (1-3).

Much of the debate is attributable to selection bias among referring physicians regarding different pain syndromes and differences in treatment goals between pain clinics. In addition, published reports have often been characterized by a predilection for generalized descriptions of chronic pain patients based on clinical data from specific clinical subgroups. Thus, the 'chronic pain syndrome' has sometimes been described as an almost homogeneous diagnostic entity when in fact it is quite heterogeneous (4). Apart from the specific localization of pain, there are also obvious clinical differences, for instance between low back pain and neck/shoulder pain patients (5-7). Unfortunately, diagnostic controversies and misleading generalizations have hindered pain research and made comparative investigation difficult.

A major step towards the solution of the diagnostic problem was the introduction of the International Association for the Study of Pain (IASP) taxonomy in 1986 (8). This classification has been recommended by the IASP itself and recently by others (7). Although many pain clinics are familiar with the IASP taxonomy, there have been only a few reports of its clinical use (9-11). The objectives of the present investigation were, first, to make a detailed diagnostic analysis of two years' referrals of patients with chronic pain based on three separate diagnostic classification systems including the IASP taxonomy; and, second, to identify and describe certain subgroups with respect to the different classification systems.

PATIENTS AND METHODS

The clinical setting

The Pain Management and Rehabilitation Clinic of Helsingborg County Hospital is a multidisciplinary out-patient clinic for chronic pain patients. It fulfils the criteria of a pain clinic according to the recommendations of the IASP (12). The clinic has three principal functions: to provide diagnosis, treatment and pain management; to evaluate functional disability; and to initiate medical rehabilitation and functional restoration to enable the patient to return to work. Treatment is multimodal and includes treatment, physical therapy, social and psychological support and cognitive-behavioural therapy on a full-time daily basis for a period of three weeks. The staff consists of one algologist (a physician qualified in internal, general and

social medicine), one registered nurse, two registered physiotherapists, one sociologist and administrative personnel. Consultants in anesthesiology, orthopedic surgery, psychiatry, neurology and rheumatology are affiliated with the clinic.

Referral procedures and criteria for admission

The city of Helsingborg is the second most populous municipality in Malmöhus, the southernmost county of Sweden. Major local industries are manufacturing, commerce, shipping and various service activities. Patients referred to the clinic are usually inhabitants of the community of Helsingborg or the surrounding rural districts. The majority of the patients are referred by industrial health physicians (48.9% of the patients), district physicians (37.1%) or private practitioners (12.3%). A minority (7.1%) are referred by hospital specialists. Referrals are made in cooperation with the rehabilitation counsellor at the local office of the National Health Insurance Authority.

Because a major goal of the clinic is functional restoration enabling the patient to return to work, the admission criteria were as follows: the patient should be suffering from chronic pain (of a duration of three to six months); be gainfully employed; have had repeated sick-leave or a longer continuing sick-leave period; or be working but at risk of extended sick-leave due to increasing functional disability; and understand Swedish adequately.

Diagnostic routines

Before admission the patient completed a detailed pain questionnaire that included a pain chart (13), a six-point verbal pain intensity scale (14) and other essential items concerning pain characteristics and the consequences of pain. The questionnaire also contained validated items for the assessment of psychosocial variables and a psychological profile (15). All medical records were examined to determine the onset of pain, its early characteristics, its development, its duration and previous medical investigations, including diagnosis and treatments given by previous physicians and their results.

On admission, a structured evaluation was made by the multidisciplinary team (algologist, physiotherapist, nurse and sociologist). Initially each patient was interviewed by the algologist to obtain complementary details of the medical history. A psychiatric interview assessment protocol (16) was used to diagnose depression. A complete and structured physical examination was then made, which included standardized protocols for the examination of internal, neurological, orthopedic, functional and muscular status. Mus-

cular tender points and trigger points, the latter characterized by the presence of peripheral referred pain and/or autonomous dysfunction, and functional muscular deficits (8,17,18) were registered when present. Muscular status and functional examination were additionally and independently established by one of the physiotherapists. In the event of disagreement on the findings, independent repeat examinations were made by both examiners until consensus was reached. Medical history, physical examination and the final evaluation of pain categorization (see below) by the algologist formed the basic structure of a total pain analysis (19). Social and psychosocial evaluations of the conditions at home and at work were made by the sociologist and the nurse. Following one whole day of examination and interviews, the team usually arrived at a pain diagnosis. However, certain patients required further evaluation at admission for therapy two weeks later.

Methods of diagnostic classification

The following three methods of diagnostic classification were used.

1) Clinical diagnoses: For practical reasons, well-known pain syndromes were given their commonly used clinical designations such as low back pain, causalgia, lateral epicondylalgia, etc. Diagnosis of myofascial pain syndrome (MPS) was based on the criteria proposed by Simons (20) (Table 1). However, because the presence of taut muscular bands and muscle twitch (20) may not be specific for MPS (21) and may be difficult to determine by palpation, the present study did not use this criterion to define MPS. With this minor modification, our definition of MPS was identical to that recently designated "trigger point syndrome" by the IASP in the second edition of the *Classification of Chronic Pain: Descriptions of Chronic Pain Syndromes and Definitions of Pain Terms* (22). Fibromyalgia syndrome (FMS) was diagnosed according to the criteria of the American College of Rheumatology (ACR) (18) (Table 2).

The physician and the physiotherapists were trained and experienced in the examination of muscular status in chronic pain syndromes. To test inter-rater reliability of tender point count (in fibromyalgia) χ^2 statistics were used to detect significant differences ($P < 0.05$) between two examiners, and kappa statistics were used to measure reliability. The latter discounts the proportion of agreement that occurs by chance alone. A kappa of greater than 0.5 is considered a cut-off point of good reliability (23). In the present study the tender point count in 32 consecutive patients diagnosed with FMS according to the ACR criteria (at least 11 tender points) was used to test inter-rater reliability. In this series the first examiner registered a mean tender point count of 12.9 (range 11 to 17) and the second 13.7 (range 11 to 18), with a kappa of 0.63 (greater than 0.60 is considered as substantial inter-rater reliability) (24).

The inter-rater reliability of MPS diagnosis was not separately examined by the present authors. However, the reproducibility of the results by trained examiners in myofascial trigger point examination has quite recently been successfully analyzed by Gerwin et al (25). In their study, four physicians obtained a mean kappa of 0.78 when examining five different muscles for trigger points and achieved a kappa of 0.69 for referred pain in 10 subjects. In a recent review on MPS, which also focused on issues of inter-rater reliability, the reviewer concluded that reliable diagnostic examination requires both training and experience (26). Thus, the diagnoses of MPS and FMS are no longer controversial, their diagnostic criteria

TABLE 1
Clinical criteria for the diagnosis of myofascial pain syndrome according to Simons (20)

Major criteria

1. Regional pain complaint
2. Pain complaint or altered sensation in the expected distribution of referred pain from a myofascial trigger point
3. Taut band palpable in an accessible muscle
4. Exquisite spot tenderness at one point along the length of the taut band
5. Some degree of restricted range of motion, when measurable

Minor criteria

1. Reproduction of clinical pain complaint or altered sensation by pressure on the tender spot
2. Elicitation of a local twitch response by transverse snapping palpation at the tender spot or by needle insertion into the tender spot in the taut band
3. Pain alleviated by elongating (stretching) the muscle or by injecting the tender spot (trigger point)

A diagnosis of myofascial pain syndrome requires all of the five major criteria and at least one of the minor criteria

TABLE 2
Criteria of the American College of Rheumatology for the diagnosis of fibromyalgia (based on reference 18)

1. History of widespread pain – definition

Pain is considered to be widespread when all of the following are present: pain in the left side of the body, pain in the right side of the body, and pain above the waist and below the waist. In addition, axial skeletal pain (cervical spine or anterior chest or thoracic spine or low back) must be present. In this definition shoulder and buttock pain is considered as pain for each involved side. 'Low back' pain is considered to be lower segment pain

2. Pain in 11 of 18 tender point sites on digital palpation – definition

Pain on digital palpation must be present in at least 11 of 18 specific tender point sites. Digital palpation should be performed with an approximate force of 4 kg. For a tender point to be considered 'positive', the subject must state that the palpation was painful. 'Tender' is not to be considered painful

Both criteria must be satisfied; widespread pain must have been present for at least three months; the presence of a second clinical disorder does not exclude the diagnosis of fibromyalgia

having been established by the IASP and the ACR. With trained examiners the diagnostic findings of both MPS and FMS can be reproduced.

Assessment of inter-rater reliability was not possible for certain other diagnoses, as exemplified by causalgia and reflex sympathetic dystrophy, both of which require professional examination of clinical features (such as edema and signs of sympathetic dysfunction) by the physician alone. Furthermore, diagnoses such as low back pain, neck/shoulder myalgia and cephalgia are merely descriptive diagnoses referring to the location of pain for which good inter-rater reliability has already been demonstrated (11).

TABLE 3
Frequency of International Association for the Study of Pain subcodes (n=503) in axes I to V

Axis I – Regions			Axis III – Temporal characteristics of pain: Pattern of occurrence CONTINUED		
Code	Body region	Number (%)	Code	Pattern	Number (%)
000	Head, face and mouth	18 (3.6)	6	Paroxysmal	0 (0)
100	Cervical	67 (13.3)	7	Sustained with superimposed paroxysms	0 (0)
200	Upper shoulder and upper limbs	100 (19.9)	8	Other combinations	0 (0)
300	Thoracic	23 (4.6)	9	None of the above	0 (0)
400	Abdominal	3 (0.6)			
500	Lower back, lumbar spine, sacrum, coccygeal	64 (12.7)			
600	Lower limbs	26 (5.2)			
700	Pelvic	14 (2.7)			
800	Anal, perineal and genital	0 (0)			
900	More than three major sites	188 (37.4)			
Axis II – Systems			Axis IV – Intensity and time since onset of pain		
Code	Body system	Number (%)	Code	Intensity and time	Number (%)
00	Nervous	15 (3.0)	.0	Unknown	0 (0)
10	Psychological and social	8 (1.6)	.1	Mild – one month or less	0 (0)
20	Respiratory and cardiovascular	0 (0)	.2	Mild – one to six months	0 (0)
30	Musculoskeletal	444 (88.2)	.3	Mild – more than six months	0 (0)
40	Cutaneous and subcutaneous	0 (0)	.4	Medium – less than one month	4 (0.8)
50	Gastrointestinal	0 (0)	.5	Medium – one to six months	2 (0.3)
60	Genito-urinary	0 (0)	.6	Medium – more than six months	112 (22.3)
70	Other organs or viscera	0 (0)	.7	Severe – less than one month	15 (3.0)
80	More than one system	36 (7.2)	.8	Severe – one to six months	5 (1.0)
			.9	Severe – more than six months	365 (72.6)
Axis III – Temporal characteristics of pain: Pattern of occurrence			Axis V – Etiology		
Code	Pattern	Number (%)	Code	Etiology	Number (%)
0	Unknown	0 (0)	.00	Genetic or congenital	0 (0)
1	Single episode	0 (0)	.01	Trauma, operation, burns	29 (5.8)
2	Continuous, nonfluctuating	275 (54.7)	.02	Infective, parasitic	0 (0)
3	Continuous, fluctuating	218 (43.3)	.03	Inflammatory, immune reactions	3 (0.6)
4	Recurring irregularly	10 (2.0)	.04	Neoplasm	0 (0)
5	Recurring regularly	0 (0)	.05	Toxic, metabolic	7 (1.4)
			.06	Degenerative, mechanical	74 (14.8)
			.07	Dysfunctional	381 (75.5)
			.08	Unknown	1 (0.2)
			.09	Psychological	8 (1.6)

2) Pain analysis and pain category coding: Pain analysis (19,27) is a term describing the analysis of pain with respect to different possible pathophysiological mechanisms (28). Clinical data derived from pain questionnaires, pain drawings and pain descriptors, etc, form the basis of pain analysis (28). A primary goal in pain analysis is to determine the main category to which the pain belongs. This is essential because many pain treatment methods are effective only in certain types of pain (27,28). The four primary pain categories (27,29) are nociceptive pain (nociceptors activated through actual or threatening injury to tissues); non-nociceptive pain of mainly neurogenic origin (pain due to injury or other dysfunction of the peripheral or central nervous system); non-nociceptive pain of unknown etiology, ie, idiopathic pain ('chronic pain syndrome'; with-

out demonstrable or suspected injury or illness, possibly enhanced by weak peripheral pain signals following a healed injury); and pain of primary psychological origin ('psychogenic' pain; caused by mental disorder). In this study the authors classified nociceptive pain as category 1, non-nociceptive pain of mainly neurogenic origin as category 2a, idiopathic pain as category 2b and primary psychological pain as category 3.

In this system, the authors generally categorized MPS and FMS as nociceptive pain (category 1). They considered emotional distress and depression to be mainly secondary to pain (3,30,31) and part of a more generalized chronic pain syndrome that they preferred to categorize as idiopathic (category 2b). Genuine psychological pain syndromes are rare (27), and only primary psychiatric

TABLE 4
Sociodemographic data of chronic pain patients (n=309)
for diagnostic classification

Characteristic	Percentage
Sex	
Female	77.3, n=239
Male	22.7, n=70
Age (years): mean \pm SD (range)	43.3 \pm 8.3 (18-62)
Ethnic group	
Swedish	69.6
Other Scandinavian	4.5
Non-Scandinavian	25.9
Education	
Comprehensive, intermediate school	54.8
Vocational school, secondary school	34.1
3- to 4-year upper secondary school	4.9
University, college	6.2
Occupational status	
Blue collar worker	89.7
White collar worker	10.3
Time (years) since onset of pain	
<1	8.1
1-2	8.0
2-5	33.0
>5	50.9
Duration of sick-certification (days)*: mean \pm SD (range)	358 \pm 228 (8-730)
Number of days on sick-leave	
>90	90.0
>270	59.9
>365	42.4

*Standardized as the total number of certified sick days during the two preceding years

pain syndromes (such as hysteria, prepsychosis, psychosis or endogenous depression) were categorized as psychological pain (category 3).

3) IASP coding: The IASP coding system has been described in detail elsewhere (8). In short, the system is based on five digits representing five different axes. The first digit (axis I) corresponds to pain regions. There are nine different regions, and more than one code is used when more than one region is involved. The second digit (axis II) relates to the organ system involved, the third (axis III) to the pain characteristics, the fourth (axis IV) to the intensity and duration of pain, and the fifth (axis V) to etiology (see Table 3 for overview). Turk and Rudy (11) tested the inter-rater reliability of the IASP coding system for axes I (pain regions) and V (etiology). They reported an overall excellent inter-rater reliability for axis I (mean kappa 0.80) but only a 'fair' inter-rater reliability for axis V (mean kappa 0.5). Although there was a call for additional research referring to the assessment of inter-rater reliability of the IASP taxonomy, it was concluded that the IASP taxonomy provides

TABLE 5
Distribution (1 to 14) of the total number of clinical
diagnoses (n=397)

Clinical diagnosis (n=20)	Number of diagnoses (%)
Myofascial pain syndromes	205 (51.6)
Low back pain	48 (12.1)
Fibromyalgia	29 (7.3)
Neck-shoulder myalgia NOS	20 (5.0)
Causalgia and reflex sympathetic dystrophy	14 (3.5)
Sacroiliac sprain syndrome	12 (3.0)
Polymyalgia NOS	11 (2.8)
Polyarthralgia NOS	9 (2.3)
Cephalgia	9 (2.3)
Shoulder pain NOS	6 (1.5)
Thoracic back pain	6 (1.5)
Pelvic pain NOS	5 (1.3)
Shoulder pain with rotator cuff dysfunction	4 (1.0)
Piriformis syndrome	4 (1.0)
Lateral epicondylalgia	3 (0.76)
Primary depression	2 (0.50)
Hand pain NOS	2 (0.50)
Facial pain NOS	1 (0.25)
Foot pain NOS	1 (0.25)
Abdominal pain NOS	1 (0.25)

NOS Not otherwise specified

considerable advances in the field of chronic pain diagnosis. Additional support to the clinical usefulness of the IASP coding systems has also been given by others (9).

The patients

During a two-year period (February 1991 to February 1993), 331 patients were referred to the authors' clinic. Twenty-two patients did not meet the admission criteria, leaving 309 consecutive patients for examination and diagnostic classification. There were 239 women (77.3%) and 70 (22.7%) men. Mean age was 43.3 years (range 18 to 62). Details of sociodemographic and clinical data are shown in Table 4.

RESULTS

Clinical diagnoses

The 309 patients accounted for 397 clinical diagnoses (ie, a mean of 1.3 diagnoses/patient). There were 20 different diagnoses (Table 5), the five most common being MPS (51.6%), low back pain (12.1%), FMS (7.3%), nonspecific neck/shoulder pain (5.0%) and neurogenic pain (causalgia and reflex sympathetic dystrophy, 3.5%). The majority (75.1%, 232 of 309) of the patients received one diagnosis only, 19.4% (60 of 309) received two diagnoses and 5.5% (17 of 309) three or more diagnoses. MPS was the most frequent single clinical diagnosis, occurring in 168 patients (54.4%), and in a further 37 patients (12.0%) in combination with another diagnosis (Table 6). Thus, MPS was the most frequently diagnosed pain syn-

TABLE 6
Distribution of clinical diagnoses in chronic pain patients (n=309)

Diagnosis	Number of patients (%)
Myofascial pain syndrome only	168 (54.4)
Myofascial pain syndrome + other pain syndrome	37 (12.0)
Myofascial pain syndromes (total number)	205 (66.4)
Fibromyalgia	27 (8.7)
Fibromyalgia + other pain syndrome	2 (0.6)
Fibromyalgia (total number)	29 (9.3)
Other pain syndromes*	75 (24.3)

*Cephalgia, low back pain, piriformis syndrome, causalgia and reflex sympathetic dystrophy, nonspecific myalgic syndromes and others

TABLE 7
Distribution of clinical diagnoses involving chronic myalgia (n=309)

Diagnosis	Number of patients (%)
Myofascial pain syndromes (total number)	205 (66.4)
Fibromyalgia	29 (9.3)
Neck-shoulder myalgia NOS	20 (6.5)
Polymyalgia NOS	11 (3.6)
Piriformis syndrome	4
Chronic fatigue syndrome with polymyalgia	1
Myalgia (total number)	270 (87.3)

NOS Not otherwise specified

TABLE 8
Classification of pain categories in chronic pain patients (n=309) according to Arnér (27)

Pain category	Number of patients (%)
1 Nociceptive	160 (51.8)
2a Non-nociceptive, mainly neurogenic	7 (2.3)
1 + 2a Combined	7 (2.3)
2b Non-nociceptive, unknown cause (idiopathic)	133 (43.0)
3 Genuine psychological pain	2 (0.7)

TABLE 9
The 10 most frequent International Association for the Study of Pain codes

Code	Number (%)
932.97	69 (13.7)
933.97	33 (6.6)
232.97	28 (5.6)
233.97	24 (4.8)
533.97	19 (3.8)
132.97	17 (3.4)
932.67	17 (3.4)
133.97	16 (3.2)
933.67	13 (2.6)
332.97	11 (2.2)

Codes 932.97 and 933.97 indicate widespread continuous severe dysfunctional musculoskeletal pain, with a duration of more than six months. Codes 232.97 and 233.97 indicate as above, but involving the upper shoulders and upper limbs

drome, occurring in 66.4% (205/309) of the patients. FMS was diagnosed in 29 patients (9.3%), two of whom also presented with another diagnosis. A further 30 patients had received a diagnosis of FMS from their referring physicians. However, because none of these 30 fulfilled the ACR criteria, they were instead diagnosed as widespread MPS (n=24), as MPS combined with low back pain (n=2), nonspecific thoracic back pain (n=1) or polymyalgia (n=3). In all, 270 patients (87.3%) received a diagnosis of myalgia (Table 7), with FMS and MPS accounting for the great majority (87%, 234 of 270).

Pain category classification

Nociceptive pain (category 1) and non-nociceptive pain of unknown origin (idiopathic pain – category 2b) were the most frequent types of pain, occurring in 160 (51.8%) and 133 (43.0%) of the patients, respectively (Table 8). However, 51 of the 133 patients categorized as having idiopathic pain syndrome were suspected to have suffered from preceding nociceptive pain disorders. Genuine psychogenic pain was seen in only 0.7% of these patients. Of the 168 patients with MPS as the sole clinical diagnosis, 81 (48.2%) were categorized as having pain of nociceptive origin, whereas in the remaining 87 (51.8%), MPS was combined with emotional distress,

depression and/or pain behaviour; these cases were categorized as idiopathic. Eighteen patients with FMS (62%) were considered to have nociceptive pain and 11 (37%) to have idiopathic pain.

The IASP coding system

There are 139 different IASP codes, ranging from code 002.77 to code 983.97. The 309 patients accounted for a total of 503 different codes (ie, 1.6 codes/patient). However, the majority of patients (61.0%, 189 of 309) were assigned one code only, with 75 patients (24.3%) assigned two codes, 32 (10.4%) three codes and only 13 (4.2%) assigned four or more codes.

The most common classification codes according to the first three axes (region, organ system and pain characteristics) were variations of code 932 (20.3%) – characterized by continuous musculoskeletal pain in more than three regions; 933 (11.5%) – as above but with fluctuating pain intensity; and 232 and 233 (each 8.9%) – characterized by musculoskeletal shoulder/arm pain that was 'continuous and stable' or 'continuous with fluctuation'. The most frequent codes classified according to axes IV (pain intensity – time since onset) and V (etiology) were .97 (55.9%) and .67 (16.7%) for severe and medium pain, respectively, for more than six months and of dysfunctional etiology, and .96 (8.9%) for severe pain lasting

more than six months and of degenerative and mechanical origin. Table 3 shows an analysis of the distribution of codes according to regions (axis I), organ systems (axis II), pain characteristics (axis III), intensity and onset (axis IV), and etiology (axis V). Widespread pain in more than three regions (code 900, 37.4%) was more common than shoulder/arm pain (19.9%) or cervical pain (13.3%). However, taken together, pain in the head, neck and shoulder/arm regions (codes 000, 100 and 200, respectively) was as frequent as widespread pain (36.8% versus 37.4%). Low back pain was coded in only 12.7% of cases. Of the pain syndromes, 88.2% were musculoskeletal (code 30). Nearly all patients (98%) suffered from continuous pain (codes 2 and 3); a great majority (72.6%) had severe pain for more than six months (code .9); and dysfunctional etiology (code .07) was most common (75.5%). Pain due to degenerative-mechanical causes (code .06) was found in only 14.8% of cases. In fewer than 2% of cases the pain was considered to be primarily of psychological origin (code .09). The 10 most common codes in the series as a whole are listed in Table 9. The most common pain disorder of all was severe chronic continuous widespread musculoskeletal pain of dysfunctional origin (code 932.97).

DISCUSSION

This descriptive analysis of different diagnostic systems showed that longstanding widespread pain in the musculoskeletal system, especially MPS, is very common, whereas pain of psychological origin is rare. Before discussing the results, some methodological issues need to be addressed.

Methodological aspects

At our clinic considerable effort is invested in the diagnostic process. The value of the structured diagnostic routines is twofold: therapeutic implications (19,27) and the fundamental psychological importance in preparing the patient for the rehabilitation process. The value of the latter recently was illustrated in a report by Jeppsson-Grassman (32), the conclusion of which was that motivation for return to work depends on the patient being provided with a comprehensible diagnosis. Thus, in our experience, diagnostic efforts do not reinforce secondary gain and pain behaviour. On the contrary, they facilitate pain management and functional rehabilitation by promoting cognitive and motivational insight.

Owing to its poor differentiation of musculoskeletal pain disorders, the International Classification of Diseases (ICD)-9 classification system was not suitable for use in this study. Instead, we found the clinical diagnostic criteria to be more appropriate for use in identifying such common disorders as MPS and FMS. It should be stressed, however, that we consider MPS to be mainly a descriptive symptomatic diagnosis because its underlying pathophysiology is still unknown (see below). However, the neurophysiological mechanisms in MPS of referred muscular pain (17,33) and the recently clarified neuromuscular spread of pain (34) are explicable to the patient, which is an essential component of the rehabilitation process. It is also important to remember that we considered most cases of chronic muscular pain, and especially FMS, to be nociceptive (4,33,35,36) because the majority of these patients did not present with complicating emotional distress, depression and/or pain behaviour (as in idiopathic pain according to our definition). This

approach may be controversial, but is in accord with the recent The Copenhagen Declaration consensus (37) on chronic muscular pain.

High incidence of MPS unrecognized before referral

In the present study myalgic pain was diagnosed in almost nine-tenths of patients. The most frequent specific myalgia was MPS (two-thirds of all patients) followed by FMS (about one-tenth of all patients). The high proportion of MPS cases calls for some comment.

Although MPS is a well established diagnostic syndrome (2,17, 38-41) included in major textbooks on pain (42), in the IASP taxonomies of 1986 (8) and 1994 (22), and in professional educational programs recommended by the IASP (43), it is often poorly recognized as a specific clinical diagnosis (38). MPS has recently been claimed to be the most common diagnosis among cases of chronic pain syndrome and related disability (38). In one sample of 283 consecutive chronic pain patients, 85% received a diagnosis of MPS (1). Another study (44) yielded a frequency of 55%, a figure similar to that of 53.4% obtained in the present study. The great majority of the patients referred to us nevertheless had a clinical diagnosis other than MPS or no diagnosis at all. Several patients with demonstrable and characteristic patterns of referred muscular pain and its associated symptoms of peripheral autonomous dysfunction (20) were referred to us as cases of psychogenic pain. Some had even received a diagnosis of hysteria. Another recent study at a multidisciplinary pain clinic (45) has highlighted the fact that the majority of referrals were characterized by undiagnosed physical ailments, which is consistent with our experience.

It is apparent that referring physicians rarely recognize MPS before its diagnosis at the specialized pain clinic. This may be because objective validation of the criteria for diagnosis is still insufficient and because the underlying pathophysiology of MPS needs further clarification (24,38,46). However, in the presence of clearly identifiable neurophysiological dysfunction with referred pain and sensory abnormalities (17,33,35), MPS constitutes a useful clinical diagnosis. The poor recognition of specific pain syndromes by referring physicians also applies to FMS because many patients with an erroneous diagnosis of FMS could be diagnosed as suffering mainly from MPS.

'Idiopathic' pain a result of dysfunctional pain modulation?

In the present study a considerable proportion of the pain syndromes (43%) was categorized as idiopathic. Some syndromes diagnosed as idiopathic may in fact be neurogenic if dysfunctional peripheral or central pain modulation is present (28,46,47). For this reason, it has been proposed that idiopathic pain should be designated 'dysfunctional pain' (48). Thus, a major problem in chronic pain classification appears to be the distinction between neurogenic (dysfunctional) pain and genuine idiopathic pain, if the latter in fact exists at all. The difficulties of distinguishing dysfunctional syndromes from those of unknown etiology have already been discussed by others (11).

Low incidence of primary psychological pain

In this investigation considerable effort was invested in disclosing contributory psychological or psychiatric factors by reviewing psychosocial and psychiatric medical records, with the aid of psycho-

TABLE 10
Comparison of International Association for the Study of Pain (IASP) codes from two pain clinics (including the present one) and prevalence of pain diagnoses in a Swedish epidemiological survey

	Pain clinic 1 Vervest et al (9)	Pain clinic 2 Present study	Epidemiological survey Andersson et al (62)
Diagnostic method	IASP code	IASP code	Prevalence study
Number of IASP codes	2983	503	—
Number of patients	2405	309	—
Number of codes per patient	1.2	1.6	—
One code only per patient (%)	79.8	61.0	—
Number of different codes	210	139	—
	Percentage of codes		Prevalence
Region (axis I)			
Neck/shoulder/arm	20.9	33.2	30.2
Lower back	36.6	12.7	23.3
Head	8.4	3.6	6.9
Thorax	8.9	4.6	6.5
Systems (axis II)			
Musculoskeletal	51.0	88.2	90.0
Characteristics (axis III)			
Continuous/almost continuous	68.5	98.0	—
Intensity (axis IV)			
Medium pain >6 months	74.0	22.3	33.1*
Severe pain >6 months	11.5	72.6	32.7 [†]
Etiology (axis V)			
Trauma	26.9	5.8	—
Degenerative	20.5	14.8	—
Dysfunctional	18.8	75.5	—
Neoplasm	10.9	0	—

*Pain intensity in the prevalence study is not directly comparable: *Pain intensity 3 on a five-point pain scale (approximately medium pain); [†]Grades 4 and 5 (ie, severe pain)*

logical assessment instruments and multidisciplinary clinical examination. In addition, the psychological evaluation was continued throughout the treatment period. Somewhat surprisingly, fewer than 1% of patients were categorized as suffering from genuine psychological pain, and a similarly low figure (1.6%) was obtained with the IASP coding system (axis V).

Nevertheless, many patients were characterized by social and psychological distress, poor sleep quality and/or depression. However, the large majority also had nociceptive pain (generally MPS) and were, thus, by our definition, categorized as suffering from a chronic idiopathic pain syndrome. All too often in the diagnostic process and in the search for contributory psychosocial factors, it was obvious that psychological distress and frustration were consequences of pain and the resulting poor quality of life. Emotional distress was also very often secondary to traumatic encounters with medical professionals (49) and/or insurance officials, who were characteristically reported as having been ignorant and sometimes even arrogant.

Our findings are in marked contrast to the high incidences of primary psychological involvement reported by others (50-52). How-

ever, in some reports the methodology of the diagnostic procedures has been insufficiently described, and nonspecific back pain or even idiopathic pain has been generalized as being chiefly the result of psychological factors (52,53). Thus, an explanation of the frequent findings of psychogenic pain may be that nociceptive pain syndromes (such as MPS) or FMS and dysfunctional syndromes of neurogenic origin have not been fully recognized (2,31,38,44,45,54). In addition, indiscriminate use of psychiatric assessment tools such as the Minnesota Multiphasic Personality Inventory has been reported to yield false positive results with respect to the presence of psychological factors (55-59). The low incidence of psychological pain in the present series is consistent with the findings of many others (3,4,27,30,31,37,46,60,61). Our experience suggests that in the past undue emphasis may have been placed on primary psychological factors in the etiology of chronic pain.

Comparisons with other studies

The essential results of the IASP coding system obtained in the present study can be compared with those of two other recent studies, one by another southern Swedish group (62) and the other by a

German-Dutch group (9). Although Andersson and co-workers (62) did not use the IASP codes, instead reporting the prevalence of pain location in chronic pain patients, and Vervest and colleagues (9) did not describe their setting and diagnostic routines in detail, comparing our results with theirs is nonetheless of interest (see Table 10 for details). At our clinic, chronic neck/shoulder/arm pain (axis I) was more frequent (33.2%) than in the German-Dutch study (20.9%), whereas low back pain was more often diagnosed by the German-Dutch group (36.6% versus 12.7% in our series). Compared with results from the German-Dutch clinic (9), musculoskeletal pain was more frequently diagnosed by us (axis II, 88.2 versus 51.0%), we found more cases of continuous pain (axis III, 98.0 versus 68.5%) of severe intensity and lasting for more than six months (axis IV, 72.6 versus 11.5%), and diagnosed dysfunctional pain four times as often (axis V, 75.5% versus 18.8%).

Is our series representative of the Swedish chronic pain population? The preponderance of female patients, musculoskeletal pain syndromes and neck/shoulder pain needs to be explained. First, at our clinic a primary goal is the occupational rehabilitation of gainfully employed persons on extended sick-leave. The preponderance of women in this group relates to the fact that the large majority of Swedish women are gainfully employed (half the national workforce are women) (63). Moreover, musculoskeletal pain is twice as common in women as in men – three-quarters of the patients seeking medical care for chronic musculoskeletal pain are women (63). In Sweden, women are sick-listed more often than men, and are characterized by greater increases in the sick-certification rate and in long term disability due to musculoskeletal pain (63,64). Thus, it is reasonable to suggest that the female over-representation in our series is consistent with the proportion of gainfully employed women with functional disability due to chronic pain in the general Swedish population.

Second, chronic neck/shoulder pain is three times as common as low back pain in the Swedish population as a whole (65). In a recent medical dissertation it was concluded that low back pain had been the most frequent chronic pain syndrome in Sweden 10 years ago, but that today dysfunctional neck/shoulder pain is quantitatively the largest occupational health problem, and occurs predominantly among women (66). Accordingly, as also reported by others (9,

67,68), in this part of northwestern Europe, chronic musculoskeletal pain, especially neck/shoulder/arm pain rather than low back pain, appears to be the most frequent chronic pain syndrome.

Thus, our series – characterized by a preponderance of women with severe continuous musculoskeletal chronic pain often localized in the neck/shoulder/arm regions – may be said to be quite representative of the chronic pain population in Sweden. This conclusion derives support from the fact that the high frequencies of chronic musculoskeletal and neck/shoulder/arm syndromes in the present series were similar to the actual prevalence figures of such disorders in southern Sweden (62) (Table 10; musculoskeletal pain 88.2 versus 90.0% and neck/shoulder/arm syndromes 33.2 versus 30.2%, respectively).

Need for diagnostic consensus and further studies

To sum up, using different methods of diagnostic classification, including the IASP coding system, the present investigation found a high frequency of nociceptive chronic musculoskeletal pain syndromes, of high pain intensity, with generally widespread pain and/or pain in the neck/shoulder/arm region (rather than the lower back), characterized by dysfunctional (rather than psychosocial or psychological) etiology. Many patients were clinically diagnosed with MPS. We need to know whether our results are in agreement with those of other clinics also primarily engaged in functional restoration to enable the patients' return to work. However, although the IASP taxonomy has been known since 1986, like others (9), we have been unable to find detailed reports from multidisciplinary pain centres describing the use of IASP codes in particular, or even of diagnostic classification systems in general. It is hoped that the recently revised and improved IASP taxonomy (22) will gain more general acceptance and prove useful in future comparative studies. However, it will not eliminate all existing diagnostic problems. Further clinical research with a focus on improved diagnostic methods is urgently needed. A priority goal should be to reach a reasonable consensus and to distinguish primary psychological pain from dysfunctional syndromes such as myofascial pain. Otherwise, persistent shortcomings in diagnostic reliability (11) and classification controversies might be obstacles to the use of what are otherwise well designed tools for diagnostic coding.

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