

Chronic Musculoskeletal Pain: Pain Related Disability and Psychological Distress

Kronik Kas İskelet Sistemi Ağrısı: Ağrı ile İlişkili Sakatlık ve Psikolojik Sıkıntı

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Summary: The aim of this study was to determine the presence and severity of pain related disability, depression and anxiety in some musculoskeletal system disorders which commonly cause chronic pain.

485 patients, who fulfilled the required criteria, were assigned in one of the five groups, namely, myofascial pain syndrome, fibromyalgia syndrome, generalized osteoarthritis, inflammatory arthritis and lumbar disc herniations. Visual analog scale, pain disability index, short form of Beck depression inventory and Taylor manifest anxiety scale were used.

Significantly higher scores for pain intensity, depression and pain related disability were detected in fibromyalgia syndrome patients ($p<0.05$), whereas significantly higher scores for anxiety was detected in the lumbar disc herniation group of patients ($p<0.05$) when compared to other groups.

In conclusion, the nature of the disease causing chronic pain seems to play a major role in psychological distress and disability related to pain; and the people with higher depression levels are more likely to have widespread pain, pain disability index seems to be a very practical way of assessing pain related disability in chronic pain patients, in which the symptoms may exceed the observable signs of a physical disability in some diseases causing chronic pain such as fibromyalgia syndrome.

Key words: Chronic pain, depression, anxiety, pain related disability

Özet: Çalışmanın amacı genellikle kronik ağrıya sebep olan bazı muskuloskeletal sistem hastalıklarında ağrıyla ilişkili sakatlık, depresyon ve anksiyete varlığını ve şiddetini belirlemektir.

Kriterlere uyan 485 hasta miyofasiyal ağrı sendromu, fibromyalji sendromu, jeneralize osteoartrit, enflamatuar artrit ve lomber disk hernisi olmak üzere 5 gruptan birine dahil oldu. Vizüel analog skala, ağrıyla ilişkili sakatlık endeksi, Beck depresyon ölçeği'nin kısaltılmış formu ve Taylor manifest anksiyete skalası kullanıldı.

Diğer gruplarla kıyaslandığında lomber disk hernisi grubu hastalarda anlamlı derecede yüksek anksiyete skorları tespit edilirken ($p<0,05$), fibromyalji sendromu grubu hastalarda ağrı şiddeti, depresyon ve ağrı ile ilişkili sakatlık skorları belirgin derecede yüksekti ($p<0,05$).

Sonuç olarak, kronik ağrıya sebep olan hastalığın tabiatının kişinin çektiği psikolojik sıkıntı ile ve ağrıyla ilişkili sakatlık düzeyi ile bağlantılı olabileceği; depresyon seviyesi yüksek olan kişilerde yaygın vücut ağrısı görülme olasılığının daha yüksek olduğu söylenebilir. Ağrıyla ilişkili sakatlık endeksi kullanımı, fibromyaljide olduğu gibi hastanın semptomlarının objektif olarak tespit edebildiğimiz fiziksel sakatlık bulgularını aşabildiği kronik ağrıya seyreden bazı hastalıklarda, ağrıyla ilişkili sakatlık seviyesini belirlemenin pratik bir yöntemi gibi görülmektedir.

Anahtar Kelimeler: Kronik ağrı, depresyon, anksiyete, ağrıyla ilişkili sakatlık

Introduction

Pain is one of the most disabling and persistent symptom of many diseases and traumatic conditions.

It has been difficult to explain how patients with similar objective disease activity report radically different pain levels, how pain can be present in the absence of tissue damage or in the absence of tissue itself (Phantom pain), how it can be absent in the presence of severe tissue damage (eg: during a fight) or how it can persist long after the known tissue damage has healed.

With the introduction of the gate theory(1), there has been a growing recognition that pain includes not only a sensory intensity component but also an affective or emotional component because it is almost always an unpleasant experience. Research has shown that, although the intensity and affective dimensions of pain are related, they can show different responses to medications. In a study by Gracely et al fentanyl reduced the intensity but did not affect the unpleasantness of painful tooth pulp stimulation(2) whereas in another study diazepam reduced the unpleasantness of pain while only had minimal effects on pain intensity(3). Additionally, there is an evidence that psychological factors such as self efficacy are more strongly related to measures of pain affect than pain intensity(4).

Three aspects of pain experience were delineated by Melzack and Wall(1):

1. The sensory aspect (temporal, spatial, pressure, thermal, and other properties)
2. Affective aspect (tension, fear and autonomic properties)
3. Evaluative aspects (occurs in two stages:
 1. Immediate stage
 2. Second or reflective stage)(5).

In the second stage of the evaluative dimension, negative emotions such as anxiety, guilt, fear, and jealousy of others' health may constitute suffering.

Additionally, a three stage model was described by Gatchell for the progression of acute pain to chronic low back pain disability(6).

Stage 1 (acute phase) is the patient's emotional reaction to his/her perception of pain (may include anxiety, fear and worry).

Stage 2 (subacute phase) if pain perception persists beyond a normal healing period (2-4 months) behavioral or psychological reactions increase.

Stage 3 (chronic phase) individuals, who have premorbid depression or hypochondriacal characteristics or other problems associated with job loss, economical or family problems may have an increased depression, somatization or symptom magnification.

Chronic pain is considered after a duration of three months (IASP). It may be associated with a continued pathology or may persist after recovery from a disease or injury, therefore, the etiology of chronic pain may be a persistent nociceptive input, such as arthritis or terminal cancer; psychological disorders such as anxiety, depression and learned behavior; or social factors such as job loss, divorce and secondary gain.

This study investigated pain intensity, pain related disability, depression and anxiety levels of patients with chronic pain due to different etiologies, namely, myofascial pain syndrome (MPS); fibromyalgia (FM); osteoarthritis (OA); inflammatory arthritis (IA) and lumbar disc herniations (LDH). Visual Analogue Scale (VAS), Pain Disability Index (PDI), Beck Depression Inventory (BDI) and Taylor Manifest Anxiety Scale (TMA) were used for comparisons in each group of diseases. The aims were to determine whether underlying disease that is causing chronic pain plays a role in each group of patients concerning depression, anxiety and disability related to pain. Correlations between subjective pain intensity, depression, anxiety and pain related disability were studied.

Materials and Methods

The patients enrolled in this study were randomly selected among inpatient and outpatient clinics of the Physical Medicine and Rehabilitation Department, Department of Orthopedic Surgery and Department of Neurosurgery. Informed consent was taken.

Group I (MPS): Criteria suggested by Simons(7) were used to determine (MPS). 115 patients with trigger points in the upper trapezius muscle were studied, (20-53 years, mean age 44.7).

Group II (FM): The 1990 ACR guidelines(8) were used for making a diagnosis of FM. 95 patients were studied, (24-58 years, mean age 47).

Group III (OA): 105 patients with generalized OA (3 or more joints affected) were studied. Diagnosis was made according to physical examination and X- ray findings, (57-69 years, mean age 66).

Group IV (IA): 60 patients with IA were studied. There were three groups of patients:

1. Rheumatoid arthritis (RA): 25 patients, (28-57 years, mean age 43.4). 2. Ankylosing spondylitis (AS): 20 patients, (21-61 years, mean age 41.2). 3. Psoriatic arthritis (PsA): 15 patients, (19-52 years, mean age 43.3).

Group V (LDH): 110 patients with LDH were studied. Diagnosis was made on physical examination findings and with computerised tomography (CT) or magnetic resonance imaging (MRI) confirmations, (22-47 years, mean age 36.3).

Patients who had pain complaints for over 6 months of duration were included in the study.

Visual Analogue Scale (VAS) was used to determine the pain intensity. Pain intensity was described by the patient using a 10 point visual scale, with 0 being no pain and 10 the most severe pain ever experienced. Research has provided strong support for the reliability and validity of VAS. The major limitation is that it focuses solely on pain intensity and fail to assess the affective dimension of pain(9).

Beck Depression Inventory (BDI) is a 21 item self-report measure which requires subjects to report on the incidence of various symptoms of depression(10). It has demonstrated excellent reliability and validity(11), as well as ability to discriminate depressed from non depressed patients(12). Cut-off point was determined as 16.

Taylor Manifest Anxiety Scale (TMA) consists of a part of MMPI test. Subjects answer the questions as "true" or "false". In some of the questions "true", in some "false" determines anxiety. Scores between 15-24 show moderate anxiety whereas scores over 25 indicate severe anxiety(13).

Pain Disability Index (PDI) is an inventory that asks the respondent to rate the degree to which pain interferes with functioning in 7 broad areas including family/home responsibilities, recreation, social

activity, occupation, sexual behaviour, self-care and life support activity. Each item score can range from 0 (no interference) to 10 (total interference). Thus the total PDI score can range from 0 to 70(14). It is found to be effective in discriminating patient immediately post surgery (high disability) and from patients several months afterwards the surgery (low disability) (14). It is also found to be sensitive to differences between outpatients (low disability) and inpatients (high disability) with chronic pain(15).

Paired-T tests and Spearman correlations were used for the statistical analysis.

Results

According to BDI results depression was present (scores>16) in 76% of FM, 42% of LDH, 37% of IA , 32% of MPS and 26% of OA patients (Table 1). Significantly higher scores for pain intensity and depression were detected in FM patients ($p<0.05$) (Table 2). Significantly lower scores were present in OA group of patients for all the parameters used in the study concerning depression, anxiety, pain related disability and pain intensity ($p<0.05$)

(Table 2). Anxiety was detected in 82% of patients with LDH, 78% of patients with MPS, 74% of IA, 51% of FM and 28% of OA patients by using TMA (scores>25) (Table 1). However, scores were significantly higher in LDH group of patients ($p<0.05$) (Table 2). FM group of patients reported significantly higher pain related disability when compared to the other groups ($p<0.05$) (Table 2). There was a strong correlation between pain intensity and pain related disability in FM and LDH groups and a moderate correlation in the other groups (Table 3).

Discussion

Epidemiologic studies suggest that individuals with chronic pain tend to have higher levels of affective distress (eg. anxiety and depression) than do non-pain populations and the occurrence of depression in patients with chronic pain more frequently than healthy controls has been established in the literature(16-21). On the other hand, chronic pain can not be considered as a simple manifestation of depression. Unlike acute pain, chronic pain signals to the clinician that something is wrong somewhere in patient's life. The origin might be biological, social or psychological. As the duration of the pain lengthens, psychological factors are thought to play an increasingly prominent role in the continuance of pain behaviour(21).

FM is not a disease but a clinical construct to characterize a chronic pain. Pain in FM is caused by a complex combination of psychological and central nociceptive process that lower pain threshold and pain tolerance(22). These patients were found to have reduced thresholds for perception and tolerance for pressure at both tender points and control points. Patients with major depression had markedly fewer tender points than patients with FM even though depression and functional symptoms were present in both groups and some of the depressed patients had chronic pain(22). On the other hand, the tender point count is reported to be related to daily stress rather than to depression, furthermore Wolfe reported that the tender point count functions as a sedimentation rate for distress irrespective of a diagnosis of FM(24). In our questionnaire a bigger proportion of patients (92%) reported life stress or daily hassles (due to economical factors, stressful job, problems in the family) in the FM group when compared to the other groups. Urrows et al also reported similar results with FM patients when compared to patients with RA or healthy control subjects(25). In our study 56% of patients in FM group reported emotional traumas in the past mostly related to continuous problems between parents, violent acts in the family, excessive alcohol intake of the father or loss of a loved person (Table 1).

Hidding et al reported discordance between self report questionnaire and observed functional disability in FM patients whereas discordance was low or absent in AS and RA patients (26). In our study, FM group of patients reported the highest scores for the pain related disability when PDI was used (Table 2), but none of them had the observed physical disability on examination. On the other hand, FM may coexist with other rheumatic diseases such as RA and recognition of this by the clinician is important. Most investigations on RA patients have shown only low correlation between physical disability and psychological distress or parameters of inflammatory activity of the disease. In our study, there was a high correlation between pain intensity and pain related disability in all groups of patients. This implies that PDI is a practical way of assessing disability caused by pain but not by physical disability since the highest scores for pain related disability were detected in FM group of patients in whom there were no objective findings of a functional loss or a physical deformity in the musculoskeletal system.

In OA, even if more than one joint are affected the picture is rather like 'monoarthritis multiplex' rather than total body discomfort which differs from FM. On the other hand, some patients with OA have local symptoms that appear disproportionate to radiographic findings, like a coexistent internal derangement in a patient with mild knee OA. However, OA group of patients had the lowest scores for all the parameters that were studied, concerning depression, anxiety, pain related disability and pain intensity. All these results were statistically significant when compared with the other groups ($p < 0.05$) (Table 2). These results may implicate that even generalized OA is less distressing than FM, MPS, IA, and LDH, so it could be said that the nature of the disease causing chronic pain is likely to make a difference.

As supported by the results of this study, the inflammatory forms of arthritis like RA are more symptomatically distressing from both physical and emotional aspects than OA because of the more pronounced joint destruction, stiffness and more rapid functional joint deterioration.

LDH group of patients had the highest anxiety scores compared to the other groups. In general practice, low back pain patients are more likely to have a diagnosis of anxiety than non-low back pain patients(27). In our study, similar results were obtained, and LDH group of patients had the highest anxiety scores compared to the other groups ($p < 0.05$) (Table 2).

In a comparison of myofascial versus discogenic low back pain those receiving worker's compensation benefits reported significantly greater levels of pain, disability and psychological stress than those not receiving benefits irrespective of diagnosis(28). The highest levels of phobia and somatization were seen in a myofascial pain/benefit recipient subgroup. Job dissatisfaction was said to be one of the strongest predictors of the progression of acute back pain to chronic low back pain. In our study, although only discogenic type of low back pain patients were included, 72.8% of this group of the patients were reported to be unsatisfied with their present job status (Table 1), and 56% of the patients with LDH reported application to their physician in order to obtain a Health Report which could enable them to retire early or could enable them to change their jobs as civilians.

Significantly higher scores for pain intensity, depression and pain related disability were detected in FM patients ($p < 0.05$), whereas significantly higher scores for anxiety was detected in the LDH group of patients ($p < 0.05$) when compared to other groups (Table 2). On the other hand, OA group of patients had the lowest scores for all the parameters used in the study, and all of these results were statistically significant when compared with the other groups ($p < 0.05$) (Table 2).

With the results of this study, one might reach to a conclusion that the nature of the disease causing chronic pain is likely to make a difference on the psychological status of the patient. On the other hand, since the patients with FM had the highest scores for depression and a more proportion of patients had depression in the FM group, it could be said that the patients with higher levels of depression are more likely to have widespread pain. Pain intensity was found to be correlated with depression in all groups of the patients, yet it is not possible to say with the results of this study, whether the depression or the pain is antecedent. It might occur in both ways and starts a turnover which is usually very difficult to break into. In order to achieve more successful results in the treatment of chronic pain patients, one should not only focus on pain intensity and disability but also

should focus on the psychological status of the patient. The results of this study show us that, most of the chronic pain patients experience some amount of psychological distress. Therefore, a psychological evaluation and an appropriate interference is crucial for a successful treatment. Both BDI and TMA are helpful tools, which could give us some practical information about patient's psychological status and their use at the clinics should be encouraged. Additionally, PDI seems to be a very practical way of assessing pain related disability in chronic pain patients, in which the symptoms may exceed the observable signs of a physical disability in some diseases causing chronic pain such as FM.

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