

## PSYCHOLOGICAL AND PSYCHIATRIC FACTORS OF CHRONIC PAIN

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### Summary

Chronic pain syndrome is a major health and socioeconomic problem that is manifested by frequent asking of medical assistance, high price of health care, sick leave, work inability and disability as well as frequent compensation requests. Generally speaking, pain, especially chronic pain, significantly diminishes the patient and their family's quality of life.

Most people experience one or more pain disorders during their life. Chronic pain prevalence accounts for 15 to 22% in population. It occurs more frequently in women, in older age and persons of decreased socioeconomic status. Chronic pain can be causally linked to comorbid psychiatric disorders, such as fear of physical illness, constant worry, anxious disorders, depression and reaction to stress.

Every pain, especially chronic, has psychological characteristics as well which are expressed to an extent. When the pathophysiologic factor is known, the pain is conventionally classified as "specific" and when it is unknown it is called "nonspecific", psychogenic, idiopathic, conversive or euphemistic atypical pain. Nonspecific pain is very often a symptom of a psychiatric disorder or it is classified in the group of somatoform psychiatric disorders according to contemporary classification systems, e.g. the American Psychiatric Association's DSM-IV and the International Classification of Diseases (ICD-10). Psychosomatic medicine studies the connection of psychological conditions and psychiatric disorders, psychosocial stress, family and occupational factors with somatic disorders. On the other hand, a painful somatic illness can cause anxiety, depression, social phobia and isolation.

Treating nonspecific psychogenic pain disorder is not possible without a holistic, integrative, interdisciplinary team approach of psychiatrists, psychologists, physiologists, neurologists and sometimes even neurosurgeons. Cognitive-behavioral psychotherapy

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is prevalent as well as techniques of alleviating anxiety and stress (autogenic training), physiologic therapy, EMG biofeedback methods and psychopharmacotherapy.

**Key words:** pain disorder; "nonspecific pain"; "specific pain"; psychalgia; idiopathic; psychotherapy; psychopharmacotherapy.

## INTRODUCTION

Psychosomatic medicine studies the connection of psychological conditions and psychiatric disorders, psychosocial stress, family and occupational factors and somatic disorders with pain syndrome. Pain symptoms are significantly connected to psychological factors, emotional distress and functional impairment. A disorder caused by psychological factors is called somatoform pain disorder in DSM-III-R as well as psychogenic, idiopathic or euphemistic, atypical disorder. The pain sometimes occurs as a symptom of hypochondria, depression or psychotic disorder. On the other hand, pain disorder as a somatic illness can cause anxiety, depression, social phobia and isolation. However, every pain has a more or less expressed psychological component. Liaison psychiatry provides a necessary holistic, integrative, interdisciplinary approach i.e. cooperation of psychiatrists' teams and teams of somatic medicine in simultaneous diagnostics and treatment of pain disorder [1].

## EPIDEMIOLOGY

Pain is a major public health and socioeconomic issue in Western countries and probably one of the most frequent reasons for asking for medical help. Most people experience one or more pain disorders during their life. Pain is connected with the high price of health care (direct and indirect), sick leave, work inability and disability. Pain has significant consequences for patients and their families, working organizations and the society as a whole. It was noticed that patients suffering from chronic pain had emotional difficulties and they were psychosocially and biochemically sensitive. 43% had no psychiatric disorders, 35% had depression, 22% had various neurotic disorders, while a small percent had personality disorder with somatisation or psychoses [2].

Considering the epidemiology of pain syndrome is not possible without a clear definition of relevant concepts of classifying criteria and causal factors. Very frequently a heavy pain syndrome occurs. For example, more than 7 million Americans had back pain and they went to the doctor's more than 8 million times a year. Pathophysiologic cause could not be found in around 90% of all back pain cases [3]. Evidence suggests that patients with chronic back pain

account for a large part of patients with general pain syndrome which is linked to a more difficult and longer working inability and major difficulties for the patient's family and the society.

Pain disorder is diagnosed twice more frequently in women than in men. Racial differences are not described. Chronic pain disorder prevalence accounts for 15 to 22% in population. Around 35% Americans have some elements of chronic pain while 50 million is partly or completely disabled because of chronic pain [3,4].

## **ETIOLOGY**

The beginning and development of nonspecific, psychogenic pain is usually connected with stress, anxiety and depression that are characteristic of mature age. Psychosomatic pain has, besides a psychogenic, a somatic etiological factor as well.

When a somatic causal factor cannot be proved despite physiological and neurologic analyses, the pain is considered psychogenic. For example, it is difficult to explain a back pain by muscle tension without any pathophysiologic evidence. It was shown that neither an equally mysterious tension headache was connected with muscle tension [5].

Little is known about risk factors that are responsible for the translation from acute into chronic form of pain. Factors of nonspecific pain are usually classified as psychosocial, occupational and personal. Psychosocial factors such as stress, anxiety, mood disorder, alcohol and drug abuse, low cognitive functioning, style of life can encourage an acute pain episode while mental suffering due to anxiety, adjustment disorder, depressive or irritable mood, fear of somatic illness, and persistent somatisations can incite a chronic form of pain [6].

### **Psychosocial factors**

Psychosocial factors significant for the development of chronic pain disorder refer to unstable and inadequate parental environment, poor adjustment to school or job, marital or material difficulties, chronic illnesses in families and loss of a close person [1,7]. A person of that kind of psychosocial conditions usually gives the impression that he/she is sensitive to stress and is prone to chronic pain syndrome in different parts of the body [7].

### **Interpersonal factors**

Unbearable pain occurs as a means of manipulation and goal achievement in interpersonal relations, e.g. so that loyalty of a family member could be achieved or that impaired marital relationships could be improved. Secondary gain is very

important for the patient so painful behaviors are stronger when they are rewarded and they are lower and prevented when they are denied or punished [1].

### **Psychodynamic factors**

A patient that experiences pain without an equivalent somatic cause symbolically lives an intrapsychiatric conflict through a physical symptom. A person can subconsciously consider mental pain as a personal weakness, psychiatric stigma and transfer it in physiologic symptom such as pain in any part of the body. The most frequent defense mechanisms linked to pain disorder are transferring, replacing and suppressing [8].

### **Biological factors**

How can the nature and link of painful peripheral experience be explained in relation to the central nervous system and psychological disorder? Cerebral cortex can inhibit the activity of afferent sensory pathways which bring painful stimuli. Anxious and depressive patients have lowered levels of painful stimuli. Serotonin is probably the most important transmitter in descendent inhibitory pathways and a lowered activity of serotonergic system is considered responsible for painful symptoms in depressive or anxious patients. Theoretically speaking, the lowered activity of noradrenaline system, which plays a role in the development of depression, has also a role in the development of painful symptoms [1].

Endorphin has a major role in the modulation of pain in the central nervous system as well. Lack of endorphin is considered to be correlating with the increased entrance of painful stimuli [1,9].

Biochemical basis of chronic pain is confirmed by its connection with depression and efficacy of tricyclic antidepressants in the treatment. However, alleviating pain with tricyclic antidepressants is as successful as in non-depressed, psychiatrically healthy persons. A precise way of antidepressants' activity is not known but can be the result of an increased concentration of monoamines in midbrain which play a role in modulating the pain.

Hypothetically, idiopathic pain occurs when emotional tension together with stress causes the release of neuropeptides in "target tissues", e.g. joint capsule and muscles, in biochemically and psychologically sensitive persons.

### **DEFINITION AND CLASSIFICATION**

Even Aristotle stressed the mental dimension of pain saying that "the pain is the passion of the soul". Pain is an unpleasant subjective experience that is

difficult to explain. According to the International Association for the Study of Pain (IASP) and the World Health Organization (WHO) "pain is an unpleasant sensory and emotional experience associated with actual or potential tissue damage, or described in terms of such damage". There is also a very simple and practical definition according to which "chronic pain lasts longer than causal and expected time necessary for treating the affected tissue" [10,11].

Pain is conventionally classified as "specific" and "nonspecific". Specific pain is defined as a symptom caused by specific pathophysiological mechanism. Nonspecific pain is defined as a symptom without a known specific pathophysiological cause and the literature usually classifies it according to the duration of symptoms; it is acute if it lasts less than 6 weeks, subacute if it lasts from 6 weeks to 3 months and chronic when it lasts longer than 3 months. Generally speaking, DSM-IV (*Diagnostic and Statistical Manual of Mental Disorders, 4<sup>th</sup> ed. 2000*) divides chronic pain syndromes in acute if they last less than 6 months and chronic if they are last 6 months or longer. ICD-10 (*International Classification of diseases and health related problems, 10<sup>th</sup> revision 1992, Chapter V: Mental and Behavioral Disorders*) defines only a persisting, distress and disabling pain that lasts at least 6 months continuously during most of the day while an acute form is not foreseen [10-13].

Psychogenic, idiopathic or euphemistic, atypical pains are entirely caused by psychological factors and they belong to neurotic-persisting somatoform pain disorders.

Sometimes pain is a symptom of hypochondria, depression or a psychotic disorder. Psychosomatic pain is not directly psychiatrically caused but stress and psychological factors have a significant role in its occurrence, severity, impairment, support and chronification [1].

### **Diagnosis, signs and symptoms**

Today the diagnosis of chronic persisting pain syndrome is made according to ICD-10 and DSM-IV classifications which state the signs and symptoms necessary to set a diagnosis [11,12].

DSM-IV diagnostic criteria for chronic pain syndrome as somatoform disorder are:

Pain is so strong that it is in the center of clinical attention.

It causes clinically significant mental pain (distress) and functioning disorder in important parts of the life such as family, job and society.

Psychological factor was proved in appearance, severity, impairment and support.

Pain is not caused intentionally or pretended such as factitious disorder and simulation.

Pain is not classified as mood disorder, anxious or psychotic disorder and it does not have criteria for dyspareunia.

ICD-10 classification offers diagnostic criteria for persisting somatoform pain disorder which refers to psychogenic, neurotic pain as well as psychosomatic pain caused by psychological and mood factors in different interrelation with somatic factors.

The existence of persisting and distress pain (at least 6 months continuously during most of the day) in a part of the body, which cannot be adequately explained by reports of physiological processes or somatic disorder, and to whom the entire patient's attention is directed.

This disorder is most frequently excluded when schizophrenia or psychotic disorder (F20-F29), somatising disorder (F45.0), non-differential somatoform disorder (F45.1) or hypochondriac disorder (F45.2) are diagnosed.

Both classifications highlight the significant role of psychological factors in the occurrence of chronic pain disorder; ICD-10 expresses more clearly the difference between somatoform pain syndrome and psychosomatic disorder, while DSM-IV stresses that pain is not intentionally caused or pretended, e.g. factitious disorder and simulation.

### **Psychogenic, somatoform, nonspecific pain**

Psychogenic, somatoform, nonspecific pain is connected to psychological factors which have a major role in the occurrence, severity, impairment and support. It is a preoccupation with pain without an influence of a somatic disease. Somatic disorder, even if it exists, has no significant influence in such kind of pain. It is the persisting somatoform pain disorder F45.4. The prevailing disease is a persisting, strong, depressive and anxious (distressed) pain which cannot be entirely explained by physiological or somatic disorders and stress caused by emotional conflict or psychosocial problems is considered to be the main causal factor. Such patients usually require great support and attention of the medical personnel and doctors.

That kind of back pain cannot be diagnosed if criteria for somatizing, anxious, depressive or delusional psychotic disorders exist and the pain occurs as a symptom within primary psychiatric disorder.

### **Psychosomatic pain**

Psychosomatic pain is connected with psychological and somatic factors which are in a changing interrelation, jointly responsible for the occurrence, severity,

impairment and support of the disorder. Pain caused by known psychosomatic mechanisms, such as muscle tension, if considered to be a leading psychological cause, should be classified as F54 (psychological factor or behavior factor joint with somatic disorder or a disease classified elsewhere) and as an additional code of that disorder classified in chapter 2 of ICD-10 (e.g. pain in the back is classified as M54.9). This category should be used when the influence of psychological factor and behavior factor are considered significant for the occurrence and course of somatic disorder classified in chapter 2 of ICD-10, e.g. pain in the back F54 and M54.9, migraine F54 and G43, tension headache F54 and G44 (G44.2 is excluded), etc. [1].

These are mild and long-lasting mental disorders such as worry, emotional conflict and isolation which cannot be classified in any of the categories of mental disorders or mood disorders in ICD-10.

There are studies that compare the number of pain symptoms with the probability and severity of symptoms of somatoform, depressive and anxious disorders. Great depressive disorder was found in 25 to 50% of all patients with pain disorder and dystimia and symptoms of depression in 60 to 100% of patients. Some experts think that chronic pain disorder has always been a form of depressive disorder suggesting that it is a masked or somatic form of depression [12].

### **Chronic pain with clear somatic etiological factors**

Chronic pain with clear somatic etiological factors causes secondary psychiatric disorders such as anxiety, depression, social phobia, isolation and suffering for loss of concentration, self-confidence and working ability. Unlike nonspecific, psychogenic and psychosomatic pain, specific pain is not classified in the chapter of psychiatric disorders [10]. The most common anatomic areas of pain are, for example, skin, neck, thigh (sciatica), pelvis, head(ache), face, breast, joint, bone, abdomen, chest, kidneys, ear, eyes, throat, teeth and urinary tract [12,14].

### **DIFFERENTIAL DIAGNOSIS**

It is hard to differentiate a somatic from pure psychogenic pain because they are mutually non-exclusive. However, there are different characteristics of physical and psychiatric pain. Physical pain fluctuates in severity and is sensitive to attention, compassion, cognition and external influences. Pain which does not change according to strength is not sensitive to stated factors; it is followed by dramatic complaining, substance abuse or addiction, depression or work inability and is probably psychogenic.

Psychogenic pain classified as a persisting somatoform pain disorder should be differentiated from the rest of somatoform disorders such as hypochondria, conversion and simulating pain.

Differential diagnosis is difficult since patient's chronic pain often brings compensation due to working inability or gain at court. Such patients most often do not simulate pain since it is a subconscious experience. Furthermore, back pain, neck pain, headache, chest or abdomen pain can be induced by psychosocial factors while in the basis there could be a somatic pathophysiological mechanism significant for the development of pain. This is why it cannot be diagnosed as somatoform pain disorder [1,11,12].

## **COURSE AND PROGNOSIS**

Pain affects patients in different ways. Most usually it starts suddenly and becomes stronger through several weeks or months and it becomes fluctuating or chronic. Depressive mood has the most significant effect on the patient's life, followed by exhaustion, decreased activity and libido, substance and alcohol abuse, addictive behavior and inability which is not in proportion with real tissue damage. Prognoses are various; chronic pain causes suffering and very often it completely disables the patient. Early treatment and prevention of chronic course improves the prognosis. When the psychosocial causal factors prevail, pain can decrease by treating and removing external stress factors. Patients with previous personality disorder of passive type who expect a court gain or receive material compensation, take substances or have a long anamnesis of pain in the lower part of the back have a bad prognosis [1,15].

## **TREATMENT**

### **Psychosomatic pain**

Psychosomatic pain precipitates or exacerbates emotional stress while in the basis of the pathophysiological mechanism of pain lies an obvious somatic factor. Stress can incite various hormonal, vascular and muscular functional disorders which can cause painful symptoms. It is important to know that these disorders are not caused by stress but they are incited, worsened and supported by them [1,12]. We should take into consideration the fact that sometimes mental and sometimes biological causal factors decide for exacerbation of pain.

Treating a patient with resistant chronic pain syndrome sometimes is made difficult because patients feel ashamed and do not want to talk about their psych-



hological problems. Courses of techniques for managing stress, music or physical exercise can help such patients. If a specific psychosocial or working problem lies in the basis, psychiatric counseling could be useful as well as techniques of alleviating external stress such as autogenic training. Psychotherapeutic approach i.e. cognitive-behavioral therapy is possible only when the patient understands and can define the psychological problem that lies in the basis of his/her suffering [6,10,13,15]. Easier pain is treated more successfully by EMG biofeedback, thermal biofeedback and cognitive-behavioral technique. In the case of severe cases and when the somatic nature of the disease prevails, standard physical therapy, local blocking or analgesic therapy should be done [7,9,16]. When stress causes tension and a high level of anxiety in a patient the therapy with anxiolytics should be used. SSRIs, which are efficient and safe, could be used for the treatment of chronic anxiety and depression. Antidepressants are used four to six months or longer. We should bear in mind, however, that it is very difficult to apply adequate doses of antidepressants in depressed patients and perform the therapy long enough in order to avoid sub-dosing which is therapeutically inefficient. Older patients can react positively to lower doses of antidepressants. When anxiety requires a psychiatric examination and treatment, the patient needs a careful and diplomatic explanation so that he/she could accept the referral to a psychiatrist as part of the therapeutic approach to the somatic component of his/her disease [16-19].

### **Primary psychiatric disorders**

Primary psychiatric disorders with pain symptoms can be found more rarely in clinical practice than the psychosomatic disorders. Neurotic, stress-induced anxious and somatoform disorders, depressive and personality disorders, behavior or psychotic disorders belong to this group [6]. Chronic pain is a frequent conversive symptom of intrapsychiatric conflict and tension which occur in depressed and anxious patients. Patients suffering from borderline type of personality disorder with behavior disorder very often arrive with Von Minhauzen syndrome which is characterized by psychopathic behavior without intentional simulation in order for obvious gain to be obtained (except from medical and nursing care). They are also prone to consciously simulate pain symptoms and are encouraged by a gain, e.g. simulating headache for obtaining sick leave [1,14]. Psychotic disorders are very often manifested by delusional ideas about nonspecific disturbances and undefined diffusing pain. These disorders belong to the group of "monosymptomatic hypochondriac psychoses" [15,17-20].

Primary health care doctors, neurologists and physiologists are often faced with the task to diagnose a psychiatric disorder and explain to the patient the psychogenic etiology of chronic pain.

The treatment depends on the psychiatric disorder which lies in the basis of the pain. Since pain is connected most frequently with neurotic, stress-induced disorders such as anxiety and depression, besides cognitive-behavioral and interpersonal psychotherapy the pharmacological approach uses also anxiolytics and antidepressants. SSRIs are the first line of antidepressants. Treating delusional pain disorders is performed by conventional and atypical antipsychotics. Conventional antipsychotic haloperidol shows great efficiency in the treatment of these disorders as well as second generation antipsychotics (clozapine, olanzapine, risperidon, quetiapin, aripiprazol etc.). Generally speaking, the therapy with antipsychotics starts with the lowest possible daily doses which are gradually increased during weeks.

Most patients experience alleviating symptoms during the first 4 to 6 weeks of therapy. Patients are usually unconfident when it comes to taking psychopharmas since they bring psychiatric stigma. This is why it is very important to inform the patient about possible side effects and prescribe a drug in small initial doses with gradual titrating so that the risk of side effects could be lowered [1,14,10,16].

### **Secondary psychiatric disorders**

Secondary psychiatric disorders which occur as a consequence of chronic persisting and disabling pain are treated mostly by psychotherapeutic approach directed towards alleviating stress as well as by cognitive-behavioral therapy [1,16]. Anxious and depressive disorders which occur in comorbidity with pain syndrome are treated according to indication and by anxiolytics and antidepressants.

### **Conclusions**

Chronic pain disorder is a condition which occurs in interaction of psychogenic and somatic factors and it develops as a psychosomatic disorder, primary psychiatric disorder (chronic persisting pain syndrome or symptom of psychiatric disorders) or secondary disorder of a known pathophysiologic process in a part of the body.

Diagnosis is made based on the criteria of ICD-10 and DSM-IV.

Treatment is not possible without a holistic, interdisciplinary, team approach of psychiatrists, psychologists, physiologists, neurologists and if needed other experts.

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## Sažetak

### **Psihološki i psihijatrijski čimbenici kronične boli**

Kronični bolni sindrom je veliki zdravstveni i socioekonomski problem koji se očituje čestim traženjem liječničke pomoći, visokom cijenom zdravstvene skrbi, bolovanjem, radnom nesposobnošću i invaliditetom te čestim odštetnim zahtjevima. Bol općenito, a poglavito kronična bol značajno smanjuje kvalitetu života bolesnika i njegove obitelji.

Većina ljudi iskusi jedan ili više bolnih poremećaja tijekom svog života. Prevalencija kronične boli u pučanstvu je 15 do 22%. Puno češće se javlja u žena, u starijoj dobi i u osoba slabijeg socioekonomskog statusa. Kronična bol se uzročno-posljedično povezuje sa komorbidnim psihijatrijskim poremećajima kao što su strah od tjelesne bolesti, stalna zabrinutost, anksiozni poremećaji, depresija, reakcija na stres.

Svaka bol, a pogotovo kronična bol ima više ili manje izražene i psihološke osobine. Kada je poznat patofiziološki uzročni čimbenik bol se konvencionalno klasificira kao «specifična», a kada nije poznat patofiziološki uzročni čimbenik kao «nespecifična», psihogena, idiopatska, konverzivna ili eufemistički atipična bol. Nespecifična bol često je simptom nekog psihijatrijskog poremećaja ili se svrstava u skupinu somatoformnih psihijatrijskih poremećaja prema suvremenim klasifikacijskim sustavima kao što su Dijagnostički i statistički priručnik (DSM-IV) Američkog psihijatrijskog društva i Međunarodna klasifikacija bolesti i srodnih zdravstvenih problema MKB-10. Psihosomatska medicina bavi se proučavanjem povezanosti psiholoških stanja i psihičkih poremećaja, psihosocijalnog stresa, obiteljskih i radno-okupacionih čimbenika sa somatskim poremećajima. Ponekad se bol javlja kao simptom hipohondrije, depresije ili psihotičnog poremećaja. S druge strane bolna somatska bolest može prouzročiti anksioznost, depresivnost, socijalnu fobiju i izoliranost.

Liječenje nespecifičnog, psihogenog bolnog poremećaja nije moguće bez holističkog, integrativnog, interdisciplinarnog, timskog pristupa psihijatra, psihologa, fizijatra, neurologa, a ponekad i neurokirurga. Prevladava kognitivno-bihevioralna psihoterapija, tehnike ublažavanja anksioznosti i stresa (autogeni trening), fizikalna terapija, EMG biofeedback metode i psihofarmakoterapija.

**Ključne riječi:** bolni poremećaj; "nespecifična bol"; "specifična bol"; psihalgija; idiopatska; psihoterapija; psihofarmakoterapija.

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