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PSYCHOSOMATIC ASPECTS OF CHRONIC LOW BACK PAIN SYNDROME

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The purpose of the study was to determine the relationships between emotional distress and pain syndrome, its characteristic parameters and impact on the quality of life in patients with chronic low back pain. The study included 110 patients, mean age 44.2 ± 8.0 years, with clinical diagnosis of lumbar spine disk pathology with chronic low back pain syndrome. The results showed that the studied patients differed by their emotional state. Emotional distress was associated with high intensity and specific symptoms of low back pain syndrome. Musculoskeletal dysfunction was associated with both physical and psychoemotional factors. The interaction of chronic low back pain syndrome complexity and biopsyhosocial factors is shown by a correlation between cytokines IL-10 and IL-8 level in blood serum and both pain intensity and duration, characteristics of emotional and physical status, and level of physical activities.

Key words: *chronic low back pain, emotional distress, musculoskeletal dysfunction, disability, IL-10, IL-8.*

INTRODUCTION

The European Federation of International Association for Study of Pain (EFIC) has made a declaration on chronic pain as a major healthcare problem, a disease in its own right. One of the most common types of chronic pain is chronic low back pain. Spine disease is one of the most common causes of disability and absence from work (13% of the total sick-leave time) and one of the most common reasons that people seek health care (10% of the number of all visits to a doctor) (Manek *et al*., 2005; Nachemson and Jonsson, 2000). FINBALT survey data show that spinal disease is the most commonly diagnosed and treated disease in Latvia.

Despite different treatment methods, for approximately 30% of patients acute back pain turns into chronic pain syndrome, which is accompanied by disability, creates remarkable financial problems to patients, to health care and to society at large. Due to the increase of chronic back pain and the disability caused by it, for 20 years it has been called a social epidemic, the cause of which has been related to cultural and psychosocial factors, as no relevant biological pathology changes are observed (Nachemson, 2000; Keef *et al*., 2004; Waddel, 2004; Linton, 2005; Freburger *et al*., 2009).

Inclusion of psychological factors in an analysis of patients with chronic low back pain should expand our knowledge and help to provide new ways of dealing with the problem that ultimately will benefit individual patients. Emotional factors are currently viewed as important determinants in pain perception and behaviour. Psychological processes are not merely a reaction to pain, but they are an integral part of pain perception (Gatchel *et al*., 2001; Keef *et al*., 2004; Waddell, 2004; Linton, 2005).

Recent studies in psychoneuroimunology are a promising way in understanding the complexity of pathogenesis of chronic low back pain syndrome. There is evidence on the pathophysiologic role of cytokines both in chronic pain syndrome (Watkins and Maier, 2000) and emotional disturbances (Beutler, 2004; Dantzer, 2005). The results of research have showed that the cytokine system also has a direct influence on muscle function and radicular pain syndrome pathogenesis in patients with lumbar spine disc disease (Miyamoto *et al*., 2000; Freemont *et al*., 2001).

The purpose of our study was to determine the relationships between emotional distress and pain syndrome, its characteristic parameters and impact on the quality of life in patients with chronic low back pain.

MATERIAL AND METHODS

Patients. The study included all patients who were sent to rehabilitation (within the framework of the State Compulsory Health Insurance Agency programme) and who were admitted to the rehabilitation centre „Līgatne" between 1 September 2006 and 1 September 2008, and corresponded to the study inclusion criteria: patients with clinical diagno-

sis of lumbar spine disk pathology with radiculopathy (after ICD-10 classification: M 51.1), who had radiologically approved L4-L5 and/or L5-S1 intervertebral disc(s) herniation, and whose primary complaint was low back pain in duration more than three months, with or without irradiation and low back pain duration more than three months and whose age was from 18 to 60 years and who agreed to participate in the study. Exclusion criteria included muscle strength in lower extremities muscles less than three grades (after Kendall); additional disease and/or traumatic injury (unrelated to the spine) that caused a functional limitation; somatoform disorder (after ICD-10 classification: F 45) or another psychiatric additional disease; a spinal pathology connected with infectious process, autoimmune or metabolic disorder, traumatic injury, neoplastic process (primary tumour or metastases) or internal organ pathology; congenital spine disorders and spine development anomaly; *cauda equina* syndrome; spinal stenosis (clinical manifestation or radiological findings); previous stabilising spine surgery or more than one level microdiscectomia; microdiscectomia less than two months; pregnancy and less than two years after childbirth.

The qualifying study group included 110 patients: 48 (43.6%) male and 62 (56.4%) female. The age of patients ranged from 24 to 60 years, mean age 44.2 ± 8.0 years. The mean age of men were 43.0 ± 7.4 years, women 45.1 ± 8.3 years. According to an independent sample t test there were no statistically significant difference between age of men and women ($t = 1.337$, $P > 0.05$)).

Procedure. Complex assessment was conducted for all patients in the first 48 hours after admission to the rehabilitation centre. For patients who were enrolled in the study during time period from 10 September 2007 to 10 October 2007, and from 10 February 2008 to 10 March 2008, the complex assessment additionally included blood serum immunological analysis. The study was conducted in compliance with ethical principles (in accordance with the Helsinki Declaration). The Ethics Committee approved the study.

Assessment methods. The following assessment methods were used:

(1) Structured interview: including both closed and open questions. The interview had the following sections: current complaints, additional diseases.

(2) A visual analogue scale (Love *et al*., 1989) used to assess pain intensity.

(3) Lumbar spine and pelvic motor control tests: 1) active straight leg raising test (Mens *et al*., 2001) — standardised functional test with proven reliability and sensitivity in patients with low back pain syndrome. This test assesses the ability of the pelvis to transfer load from lumbar spine to legs, and therefore, it is indicative for stability of lumbar spine and pelvis; 2) Trendelenburg test (by Hardcastle and Nade, 1985) — this test was originally designed to evaluate hip function, but in recent years it has been shown that the test assesses motor control of pelvis and lumbar spine in weight-bearing position (Roussel *et al*., 2007). The test is a standardised functional test with proven reliability. Both tests were interpreted by a four-point scale for each leg: (0) no special effort and no objective signs of disturbance, (1) difficult, but no objective signs of disturbance, (2) difficult and objective signs of disturbance, (3) could not tolerate pain. The scores of both legs were summed resulting in a range of 0 to 6 points; lower scores indicated better lumbar spine and pelvic motor control.

(4) Palpation test used to evaluate the muscle tension. The following muscles were palpated and assessed: *m. erector spinae pars lumborum, pars thoracica* un *pars cervicalis*, *m. quadratus lumborum*, postural muscles of pelvic girdle (*m. tensor fasciae latae* un *fascia lata*, *m. biceps femoris* un *m. semitendinosus, m. semimembranosus*, *m. ileopsoas*), postural muscles of shoulder girdle (*m. trapezius* upper part, *m. levator scapulae, m. pectoralis minor* and *m. sternocleidomastoideus*). Muscles were palpated at both sides (left and right). During the palpation test tension of muscle or ligament was evaluated by a score from 0 to 3 where (0) is not excessive tension (strain), (1) mild, (2) moderate, (3) marked tension (strain). The results from the two sides were summed, resulting in a range of 0 to 6 points; lower scores indicated a lower tension.

(5) Body mass index (BMI) (Anonymous, 1995).

(6) Hospital Anxiety and Depression Scale (HADS) used to assess the level of anxiety and depressive symptoms (Zigmond and Snaith, 1983). This study used an adapted version of the scale. Permission was obtained from the National Foundation for Educational Research (nferNelson) to use the translation; the used version of HADS showed good internal consistency and reliability (Cronbach's alpha 0.892).

(7) Fear Avoidance and Beliefs Questionnaire (FABQ) used to assess patient attitudes and beliefs about influence of physical activities and work to their back pain, and determines the desire to avoid physical activities and work (Waddell *et al*., 1993). In the study an adapted version of FABQ was used; the used version* of FABQ was shown to have good internal consistency and reliability (Cronbach's alpha 0.902).

(8) Assessment of emotional support — sense of emotional support evaluated by assessment of perceived emotional support from seven support achievement sources. The patient was asked to evaluate each of seven achievement statements by the seven-point Likert scale (0 – completely disagree, 6 – completely agree). Four statements were related to family / friends / work / groups of social activities. Three issues were related to how much the patient feels support

* The adapted version was developed as part of D. Šmite's promotional work „Hronisku muguras lejasdaļas sāpju pacientu analīze biopsihosociālā modeļa ietvaros" [Analysis of patients with chronic low back pain within the frame of a biopsychosocial model] conducted in collaboration with Rīga Stradiņš University Professor Uldis Teibe.

from health care professionals (family doctor / other doctor / other medical staff). The questionnaire results were interpreted separately for each statement (range 0 to 6), and calculated the total amount for health care professionals (potential range from 0 to 18), and the total amount represented by the sense of support from family, friends, colleagues at work and social activity groups. Higher scores indicated a greater sense of social and emotional support.

(9) SF-36® Health Survey — questionnaire to assess eight dimensions of quality of life (Ware *et al*., 1993; Garrat *et al*., 2002). In the study an adapted version of the questionnaire was used (permission for use of the Latvian language translation from QualityMetric); the adapted version of SF-36 had shown good internal consistency and reliability (Cronbach's alpha 0.982).

(10) Immunological analysis of blood serum used to detect the level of cytokines. Cytokine (IL-2, IL-4, IL-6, TNF-a, IL-8, IL-10, IL-1a, IL-1b, INF-g) levels in blood serum were determined by immunological analysis based on xMAP technology using a LUMINEX 200 system (USA) and LINKOplex cytokine's analysis kits (USA) (multitiplex fluoriscence — multidetection system).

Statistical methods. Data processing was conducted using the computer programme Microsoft Excel and SPSS. To analyse the general characteristics of the patients, descriptive statistics (mean values, standard deviation, minimum and maximum values) and frequency analysis were used. To determine significant relationships, Spearman correlation coefficients between the individual indicators were calculated. The effect of several factors on one dependent factor was estimated by multiple linear regression analysis. Significant differences between independent groups were determined by t tests. Pearson chi-square analysis and the confidence interval were used to determine significant differences in distributions of patients among groups. The null hypothesis was rejected if $P < 0.05$).

RESULTS

Based on literature data and empirical assumptions, patients were divided into two groups: Group 1: patients without emotional distress (depression and anxiety levels after HADS < 7 points): 69 patients; Group 2: patients with emotional distress (depression and/or anxiety levels after HADS ≥ 7 points): 41 patients (Table 1).

Emotional distress (Group 2) in 35 (85%) patients were characterised by clinically significant depressive symptoms and elevated anxiety levels, while the remaining 6 (15%) patients were characterised by elevated anxiety levels, but lacked clinically significant depressive symptoms (after HADS).

The distributions of patients in the groups by gender and mean age showed no significant differences. The groups did not significantly differ in education level, employment status and workplace risk factors, as well as patient marital status. Regarding addictions, in Group 2 there was a higher proportion of smokers (difference 26% (95% CI from 42 to 9%) and patients who frequently used alcohol. There was no significant difference between the groups in patient daily physical activity level.

A total of 68 patients (61.8%) received pharmacotherapy (non-steroidal anti-inflammatory drugs – peroral at therapeutic doses and/ or topical. Medication was regularly used by 23 patients (20.9%). The others used medication at times of pain aggravation for their low back pain treatment. There was no significant difference between Groups 1 and 2 in relative proportion of patients by treatment. Patients who were included in immunological testing had not received any medication. Twelve reported that for pain relief they used a variety of unconventional methods (most commonly, different topical ointments/tinctures): no significant difference in proportions between Groups 1 and 2.

All of the studied patients with a current episode of low back pain had previously received conservative treatment (both as outpatient and inpatient treatment, including pharmacotherapy, advice of bed rest and reduced activities, lumbar orthoses, massage, physical procedures and physical exercises) and 28 (25.5%) had received also surgical treatment (one level lumbar microdiscectomia operation). There was no significant difference in previous surgical treatment between Groups 1 and 2.

Correlation analysis of cytokine levels with factors showed that serum levels of IL-10 and IL-8 were significantly related ($P < 0.05$) with both emotional and physical disturbances, pain syndrome and level of disability (Table 2). A reduced level of IL-10 in blood serum was associated with more pronounced depression symptoms (r = -0.213, $P = 0.037$), worse lumbar spine and pelvic girdle motor control (r = -0.312, $P = 0.020$ and r = -0.413, $P = 0{,}018$), a more sustained current pain episode (r = -0.230, $P = 0.044$) and greater limitation of physical activities (PF SF-36: r = 0.304, $P = 0.018$). An elevated level of IL-8 level in the blood serum was associated with a higher level of anxiety (r = 0.394, $P = 0.014$), less social support (family: r = -0.304, $P = 0.003$, work: r = -0.232, $P = 0.041$, doctor: r = -0.434, $P = 0.013$), elevated body mass index (r = 0.394, $P = 0.021$), excessive muscle tension (lumbar spine: r = 0.251, $P = 0.043$), and greater pain intensity (r = 0.233, $P = 0.042$).

Multiple linear regression analysis showed that in patients of Group 1, physical activities (PF SF-36) were significiantly ($P < 0.05$) associated with lumbar motor control (beta = -0.680, $P = 0.028$), body mass (beta = -0.612, $P = 0.002$), the patient's beliefs and avoidance behaviours (beta = -0.661, $P = 0.004$), but relatively less by pain intensity (beta = -0.253, $P = 0.031$) and duration of the current pain episode (beta = -0.362, $P = 0.035$). In Group 2 the major effect was related to pain intensity (beta = -0.626, $P = 0.020$), less on patient's beliefs and avoidance behaviours (beta = -0.332, $P = 0.032$) and lumbar motor control (beta = -0.412, $P = 0.021$). In Group 2 physical activity (PF) was

Table 1

CHARACTERISTICS OF PAIN SYNDROME, PHYSICAL AND PSYCHOLOGICAL STATE, QUALITY OF LIFE IN BOTH GROUPS

				Group 1 (n = 69)	Group 2 (n = 41)	Significant difference between groups ($P < 0.05$)
Low back pain syndrome Intensity (after VAS): M ± SD				3.1 ± 1.2	4.2 ± 1.8	Significant difference (t = 1.994. $P = 0.001$)
Nature	continuous with episodes of exacerbation n (%)			33	31	Significant difference (according CIA $P < 0.05$)
	intermittent (single episodes of pain) n (%)			36	10	
Duration of current pain episode (months): M ± SD				8.5 ± 5.4	9.2 ± 6.3	No difference (t = 0.635, $P > 0.05$)
Onset of current pain episode		sudden n (%)		39 (56.5)	7 (17.1)	Significant difference (CIA and Pearson χ^2)
		gradual n (%)		30 (43.5)	34 (82.9)	
The first episode of pain (years ago): M ± SD				7.6 ± 8.3	9.9 ± 8.0	No difference (t = 1.389, $P > 0.05$)
Settlement of the first episode of pain		complete improvement n (%)		39 (57.4)	12 (30.8)	Significant difference (CIA and Pearson χ^2)
		partial improvement n (%)		20 (29.4)	23 (29.0)	
Physical state						
Motor control of lumbar spine and pelvis[1]	ASLR test results: M ± SD			4.4 ± 0.6	4.9 ± 0.7	Significant difference for ATKP (t = 3.511, $P < 0.001$)
	Trendelenburg test results: M ± SD			4.5 ± 1.0	4.5 ± 1.0	
Muscle tension[2] M ± SD		*m. erector spinae*	*pars lumborum*	3.7 ± 1.4	5,1 ± 1,1	Significant difference for all tested muscles and muscle groups (t test, $P < 0.001$)
			pars thoracica	3.6 ± 1.1	4,5 ± 1,1	
			pars cervicalis	3.8 ± 1.1	4,6 ± 1,3	
	pelvic girdle muscles (in average)			3.8 ± 0.8	4.5 ± 1.0	
	shoulder girdle muscles (in average)			4.1 ± 1.2	5.1 ± 0.9	
Body mass index (BMI): M ± SD				30.1 ± 8.6	26.8 ± 4.3	Significant difference (t = 1.982. $P = 0.01$)
Patient attitudes and behaviour FABQ: M±SD				16.7 ± 7.2	18.7 ± 8.8	No difference (t = 1.544, $P > 0.05$)
Sense of emotional support						Significant difference for all sources of support (according to t test results, $P < 0.05$)
Sense of support from: M ± SD	family			5.1 ± 1.6	3.5 ± 1.7	
	friends			5.4 ± 0.7	4.4 ± 1.4	
	work			4.8 ± 1.4	3.1 ± 1.7	
	social groups			4.2 ± 1.8	3.4 ± 1.8	
	family doctor			5.3 ± 0.9	4.0 ± 2.2	
	other doctor (neurologist)			5.4 ± 1.0	4.3 ± 1.9	
	other health care specialist			4.8 ± 2.2	3.4 ± 2.6	
Activities and participation (SF-36 scale) M ± SD Physical activities (PF)				73.8 ± 14.5	62.2 ± 17.0	Significant difference for all dimensions (according to t test results, $P < 0.05$)
Participation due to physical health status (RF)				36.2 ± 12.8	31.4 ± 23.1	
Participation due to psychological status (RE)				82.6 ± 24.0	38.2 ± 33.8	
Social participation (SF)				49.5 ± 10.4	34.9 ± 13.2	
Pain and its impact to participation (BP)				77.2 ± 11.2	56.4 ± 11.9	
Self-esteem of general health status (GH)				64.0 ± 19.9	48.4 ± 15.9	

[1] Tests results were calculated as average from both sides.

[2] Muscle test results were calculated as average from both sides.

affected more by depression symptoms (beta = -0.452, $P = 0.011$), compared to that in Group 1.

Participation in daily activities due to physical health status in Group 1 was shown by multiple linear regression analysis to be determined by motor control parameters (beta = -0.324, $P = 0.034$), the patient's beliefs and avoidance behaviours (beta = -0.233, $P = 0.008$), and pain intensity (beta = 0.355, $P = 0.001$). However, the strongest impact was from sense of emotional support from family, friends, work and social activities groups (beta = 0.402, $P = 0.012$), as well as sense of support from health care providers (beta = 0.432, $P = 0.032$). In Group 2 the major effect on participation in daily activities was due to pain intensity (beta = -0.723, $P = 0.001$), and to a lesser extent ($P < 0.05$) from physical state variables (beta = -0.212), psycho-emo-

Table 2

SPEARMAN CORRELATIONS OF FACTORS IN GROUPS CLASSIFIED BY DISTRESS

		Low back pain intensity (VAS)		Duration of current pain episode		Anxiety level (HADS)		Depression symptoms (HADS)	
		Group 1	Group 2	Group 1	Group 2	Group 1	Group 2	Group 1	Group 2
		R *p*	*R* *p*	*R* *p*	*R* *P*	*R* *p*	*R* *p*	*R* *p*	*R* *p*
Motor control	ASLR test	**0.482**** **0.001**	0.108 0.500	0.133 0.274	0.034 0.831	0.235 0.056	**0.363**** **0.002**	0.157 0.209	0.276 0.088
	Trendelenburg test	**0.455*** **0.018**	**0.385**** **0.001**	**0.331**** **0.006**	**0.395*** **0.048**	0.010 0.934	**0.302**** **0.002**	0.049 0.697	0.021 0.901
BMI		-0,140 0,265	0.078 0.644	**0.745**** **0.000**	0.222 0.180	-0.174 0.173	-0.040 0.814	0.197 0.122	-0.136 0.422
Muscle tension in paravertebral muscles	lumbar part	**0.711**** **0.003**	**0.521**** **0.001**	**0.307*** **0.010**	-0.021 0.898	0.271 0.095	**0.452**** **0.001**	0.252 0.053	**0.458**** **0.000**
	thoracic part	-0.188 0.121	0.029 0.858	**0.381**** **0.001**	0.023 0.884	0.007 0.964	**0.311*** **0.011**	0.234 0.051	**0.299*** **0.015**
	cervical part	0.156 0.161	0.217 0.067	**0.325**** **0.006**	**0.550**** **0.001**	**-0.358*** **0.032**	0.116 0.356	**-0.267*** **0.041**	0.127 0.308
Anxiety level (HADS)		0,300 0,056	**0.543*** **0.021**	-0.182 0.052	**-0.552*** **0.001**	**1**	**1**		
Depression symptoms (HADS)		0,007 0,956	**0.325*** **0.013**	0.107 0.392	**-0.620*** **0.001**	0.042 0.804	0.221 0.056	**1**	**1**
Attitudes and avoidance behaviour (FABQ)	physical activities	**0.529**** **0.001**	0.312 0.208	0.167 0.184	-0.253 0.311	0.171 0.125	0.222 0.180	0.177 0.212	0.176 0.128
	work	**0.431**** **0.001**	0.318 0.213	-0.145 0.256	0.160 0.539	0.087 0.964	-0.021 0.898	0.128 0.133	0.211 0.056
Sense of support	family, friends, work and activities groups	**0.314*** **0.010**	0.042 0.804	-0.126 0.315	0.069 0.684	0.131 0.161	0.243 0.061	**-0.245*** **0.044**	**-0.301*** **0.036**
	health care providers	**0.366**** **0.003**	0.134 0.429	**-0.382*** **0.002**	-0.023 0.891	-0.125 0.216	0.170 0.098	0.077 0.743	**-0.265*** **0.021**

* Correlation significant $P < 0.05$; ** correlation significant $P < 0.01$

tional state variables (FABQ: beta = -0.433, anxiety: beta = -0.462; depression: beta = -0.524). In Group 1, participation in daily activities was most strongly affected by sense of support from family, friends, work and activities groups (beta = 0.641, $P = 0.001$), as well as sense of support from health care providers (beta = 0.682, $P = 0.001$).

DISCUSSION

Chronic low back pain problem is a challenge for scientists as well for clinical practitioners. Still unanswered remains the question of why, on a background of overall increasing well-being and medical development, is the number of patients suffering from lower back pain not decreasing but increasing and why has it become a main issue for economically active patients (from chronic lower back pains sufferers up to 45% for adults).

Choosing criteria allowed us to form a homogenic study group from the point of view of the clinical diagnosis and structural spine damage, e.g. all study subjects had a basic diagnosis of lumbar spine disc pathology with radiculopathy (M 51.1.) and all patients had radiologicaly confirmed lumbar spine disc (-s) degeneration with an impact on nerve root.

The results of clinical studies, performed during the last ten years have confirmed the model of the multidimensional lower back pain syndrome, integrating physical, emotional and social pathogenetic factors (Nachemson and Jonsson, 2000; Keef *et al*., 2004; Waddel, 2004; Linton, 2005; Freburger *et al*., 2009).

All patients involved in this study had similar structural spine damage (choosing criteria), and all patients had decreased lumbar spine and pelvic motor control and excessive tension of muscles and ligaments. However, the patients differed as to the emotional state: 37.3% had emotional distress that was manifested by increased levels of anxiety and associated with clinically significant symptoms of depression.

Basing on the literature and personal experience, the authors grouped the patients according to signs of emotional distress. Patients in the emotional distress group had more expressed musculosceletal dysfunction (more affected lumbar spine motor control, more pronounced excessive muscle tension). Considering that all patients had similar structural spine damage, emotional disturbances (increased level of anxiety and clinical depression symptoms) have been considered as independent, concurrent pathogenetic factors in the development of musculoskeletal dysfunction in patients

with chronic low back pain. Motor control was correlated ($P < 0.05$) with the level of anxiety, which is clinically important relationship that has to be taken into account in interpretation of physical state of patients. There was also a significant correlation ($P < 0.05$) between excessive muscle tension and anxiety level, and with pain intensity, which has been frequently recognised in clinical praxis and described in the literature (Ohrback and McCall, 1996).

The results indicate that a high level of anxiety and clinical depression symptoms are associated with worse health-related quality of life, which is characterised by more expressed disability. Similar finding have been described also by other authors (Fisher and Johnson, 1996; Pincus *et al*., 2002). In patients with emotional distress there is a greater influence from pain syndrome on physical activities and participation in every day life. This can be explained by altered pain perception, as well as by cognitive and behavioural manifestation of depression symptoms (lack of interest, avoidance of social contacts etc.).

Participation in everyday activities (due to physical health, emotional disturbances, pain syndrome) was substantially affected by a sense of support, particularly in the case of emotional distress. This indicates the importance of therapeutic relationships between the patient and health care provider, support groups and psychotherapy, in the treatment and rehabilitation of patients with chronic low back pain.

To increase the understanding of the complicated pathogenetic mechanisms involved in chronic back pain (including lower back) syndrome, neiroimmunological studies have integrated physical, emotional and social factors (Watkins *et al*., 2000; Peng *et al*., 2007), searching for pathogenetic mechanisms at the molecular level (cytokines). Immunological analysis to determine levels of cytokines in blood serum was included in our study, which helped to understand bio-psycho-social aspects of chronic low back pain syndrome pathogenesis. IL-10 and IL-8 were two of the most characteristic cytokines associated with chronic back pain. Previously, the association of IL-10 in the pathogenesis of chronic pain syndrome has been shown, and the association of IL-8 with pathogenesis of radicular pain syndrome in patients with lumbar spine disk pathology (Seyler *et al*., 2006; Miyamoto *et al*., 2000). This finding reflects the unity of body and psyche, and the complexity of pain syndrome, as shown previously (Watkins *et al*., 2000; Beutler, 2004; Dantzer, 2005).

The conclusions are:

1. Chronic low back pain patients with clinical diagnosis of lumbar spine disc pathology with radiculopathy differ as to the emotional state and can be divided into two clinically diverse subgroups: patients with emotional distress symptoms and patients without them. This creates a need for adaptive treatment and rehabilitation tactics.

2. Emotional distress for chronic low back pain patients is associated with higher intensity and specific features of low back pain syndrome — constant pain disposition, gradual pain onset, uncured first pain episode, significant pain syndrome impact on different activities and participation.

3. Musculoskeletal dysfunction (reduced lumbar spine and pelvic motor control and excessive muscle tension) for patients with chronic low back pain is associated both with physical ($P < 0.05$) and psyco-emotional ($P < 0.05$) factors. This needs to be taken into account both in interpretation of physical functional test results and in treatment.

4. The complexity of chronic low back pain syndrome complexity and its interaction with biopsychosocial factors is illustrated by the correlation of cytokines IL-10 and IL-8 levels in blood serum with both pain intensity and duration, and characteristics of emotional and physical status, and level of physical activities.

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HRONISKU MUGURAS LEJASDAĻAS SĀPJU SINDROMA PSIHOSOMATISKIE ASPEKTI

Eiropas Sāpju asociāciju federācija ir izvirzījusi konceptu par hronisku sāpju epidēmiju, kura pēdējā desmitgadē rada finansiāli lielāko veselības aprūpes problēmu Eiropā. Statistikas dati liecina, ka no hroniskām sāpēm cieš katrs piektais pieaugušais Eiropas iedzīvotājs. Viens no biežākajiem hronisku sāpju veidiem ir hroniskas muguras lejasdaļas sāpes. Pētījuma mērķis bija noteikt un analizēt emocionālā distresa un sāpju sindroma mijiedarbību, to raksturojošos parametrus un tā ietekmi uz dzīves kvalitātes rādītājiem pacientiem ar hroniskām muguras lejasdaļas sāpēm. Pētījumā tika iekļauti un analizēti 110 pacienti, vidējais vecums 44,2 ± 8,0 gadi, ar pamata klīnisko diagnozi mugurkaula lumbālās daļas diska bojājums ar radikulopātiju, kuru primārā sūdzība bija muguras lejasdaļas sāpes vairāk nekā trīs mēneši (hroniskas sāpes). Pētījuma rezultāti uzrādīja, ka pētītie pacienti bija atšķirīgi pēc emocionālā stāvokļa un viņus var iedalīt divās klīniski atšķirīgās apakšgrupās — pacienti ar emocionālā distresa simptomiem un pacienti bez tiem, kas rada atšķirīgas ārstēšanas un rehabilitācijas taktikas nepieciešamību. Emocionālais distress bija saistīts ar muguras lejasdaļas sāpju izteiktāku intensitāti un specifiskām izpausmēm. Mioskeletālā disfunkcija pētītajiem pacientiem bija ticami saistīta gan ar fiziskiem, gan psiho-emocionāliem faktoriem. ($P < 0,05$). Rezultāti uzrādīja, ka emocionālais distress būtiski pasliktina pacientu dzīves kvalitātes rādītājus, kas izpaužas ar izteiktu aktivitāšu un dalības ierobežojumu. Hronisko muguras lejasdaļas sāpju sindroma komplicētību un biopsihosociālo faktoru mijiedarbību ilustrē citokīnu IL-10 un IL-8 līmeņa asins serumā korelācija gan ar sāpju intensitāti un ilgumu, gan emocionālā un fiziskā stāvokļa raksturlielumiem, gan fizisko aktivitāšu līmeni.