Department of Health
REPUBLIC OF CHINA

25 November 1991/Vol. 7/No. 11

Epidemiology Bulletin

– Contents –

Life Stresses and Low Back Pain

Life Stresses and Low Back Pain

Low back pain is a group of chronic syndromes, and is perhaps the most commonly complained illness of humans since they beg ans stood on two feet. It not only ristricts and individual's physiological functions, creates emotional disturbances, leads to loss of human resources as a result of individual's absence from work, and also increases burdens on medical care resources because of the increased frequency of medical care. Therefore, low back pain is a serious problem of physical and mental health as well as an important issue of social resources. Since the cause of low back pain complicated and multiple, its prevention, diagnosis and treatment are relatively is difficult. Many researchers have investigated the pathogenicity of low back pain, there have been some definite findings on the physiological of aspects pathogenicity, findings on the psychological aspects, however, are divided, and knowledge on the psychological factors of disease mechanism is still limited.

Clinically, cases with low back pain symtoms but without clear organic disorders are frequently seen. Some argue that organic disorders are in fact in existence but cannot be detected by currently available instruments. Many researchers, however, are of the opinion that this false negative theory can only explain a part of causes. The major pathogenic causes, perhaps, are psychological. In his review of the relevant literatures keel concludes that psychological stresses are one of the major causes of either organic or non-demorstrated organic low back pain. Epidemiological or clinical studies have further suggested that life stresses are, to some extent, positively related to the characteristics, frequency and seriousness of low back pain. Therefore, it seems that life stresses are most likely to be a mjor pathogenic cause of low back pain. The present study intends to investigate the relation between life stresses experienced by patients before the onset of disease and the seriousness and characteristics of low back pain, in order to understand the disease mechanism of life stresses on low back pain as a basis for prevention and diagnosis.

Subjects of the study were acute or recurrent low back pain patients, aged between 20 and 65 years of age, of the Rehabilitation Department of the Tri-Service General Hospital Studies during the period between 1 December 1990 and 30 April 1991. They were diagnozed by specialists of rehabilitation medicine as "low back pain" patients (exclusive of low back pain patients from infection, tumors, urological diseases or skeletal disorders). Patients meeting the criteria of the study were selected by a rehabilitation specialist. Upon the consent of patients, another rehabilitation specialist, after careful

diagnosis, comploted a questionnaire consisting of sociodemographic information of the patients and their subjective and objective complaints of low back pain. They administered a life stress scale (consisting of 58 stressing life events related to family, marriage, job, school, health, individual, social, law and economics). Subjects were asked to recall within last six months the life events and time, and a questionnaire on the characteristics of low back pain. Data were double-cheked to avoid any error and then statistically analyzed.

209 either acute or resurrent patients meeting the criteria were included in the study. The diagnoses were 68 hernias of intervertebral disc, 85 patients of degenerative joint disease, 23 patients of myofascial pain symdrome, 13 lumbar sprains, and 20 chronic sacral iliac sprains.

The demographic characteristics of the patients were: 55.5% female; average age 43.4 years with equal distribution in each age group; 72.2% married, 22% unmarried, and a few widowed or divorced; 37.8% with college and above education, 30.6% with senior high school education, and 31.6% with junior high and less education; 55% with a monthly income of less than NT$20,000, 36.8% with an income between NT$2-40,000, and 8.1% with an income higher than NT$40,000.

It can be Shown from Table 1 that there is no significant difference ($p>0.05$) between the frequency of stressing life events or value of life change and variables such as sex, age, marital status, educational level and monthly income. However, significant differences are observed between different types of low back pain and either the frequency of stressing life events or the weighted value of life change ($p<0.0001$). A test by Scheffe's method also shows that life stresses of non-demorstrated organic low pack pain patients (including patients of myofacial pain syndrome, chronic lumbar sprain, and chronic sacral iliac sprain) within last six months (the average number of life stress events is 4.5, and the average value of life changes, 222) are much higher than those of the organic low back pain patients (including patients of hernia of intervertebral disc and degenerative joint disease).

As shown in Table 2 there were no significant difference ($p>0.05$) as observed between the number of stressing life events or the value of life change and either the subjective or objective seriousness in the hernia of intervertebral disc, degenerataive joint disease and non-demorstrated organic low back pain. Again, from Table 3, no significant difference ($p>0.05$) is found between each characteristics of low back pain and the hernia of intervertebral disc and degenerative joint disease, though the relation between non-demorstrated organic low back pain and two variables, serious emotional distress and moderate intermittent hot sensation was significant ($r=0.34$ and $r=0.44$).

Reported by: H.C. Huang (FETP, National Institute of Preventive Medicine, DOH)

Editorial note: Findings of the present study show that different types of low back pain vary in the frequency of stressing life events or the value of life change six months prior to the occurrence or recurrence of the illness, and that the differences are more

significant among patients of non-demorstrated organic low back pain (including myofascial pain symdrome, lumbar sprain and sacrol iliac sprain).

Findings from this study seem to indicate that low back pain of less organic disorders is more related to stressing life events. The average number of stressing life events experienced by patients of non-demorstrated organic low back pain in the last six months, 4.5 times, is significantly higher than the average of general adult groups surveyed in 1986 (average 2.5 times for the 58 stressing life events). Though Leavitt et al.[8] did not have similar findings, Sternbach,[11] in his study of American adjults, found highly positive relations between life stresses and low back pain. Craufurd et al.[14] pointed out that hazardous life stresses of low back pain patients of confirmed organic disorders were much higher than patients of unknown causes. Feuerstein et al.[10] also found that life stresses of chronic low back pain patients were much more than those of the normal control groups. Life stresses, therefore, seem to be one of the pathogenic causes of low back pain, but are less related to low back pain of apparent organic sources and are more closely related to low back pain of non-demorstrated organic sources.

The present study also shows that life stresses of patients are not significantly related to the seriousness of low back pain. This finding seems to demorstrate that life stresses do not increase the seriousness of low back pain. Leavitt et al.[8] and Nwuga,[9] in their clinical studies, also concluded that life stresses were not related to the intensity of pain of either organic, could-be organic or non-organic low back pain paitents. Sternbach,[11] in his national study of American adults, however, showed that life stresses were positively related to incidence, frequency and seriousness of all kinds of pain. Differences in the findings of these studies may have resulted from different study subjects. The present study measured the seriousness of pain at the time of interview. The seriousness of pain at the time of onset was not measured, the findings can not completely negate the relationship between life stresses and the amount of low back pain.

The present study also shows a significant relation ship between non-demorstrated organic low back pain and variables such as serious emotional distress and moderate sporadic heat pain ($r=0.34$ and $r=0.44$), though no significant relation is found between life stresses of non-demorstrated organic low back pain and their symptoms. The finding seems to demorstrate that life stresses of low back pain patients of various organic disorders are related in different degrees with the symptoms of low back pain. Leavitt et al.,[8] in their study, also indicated that when low back pain patients were grouped by the degree of organic disorders, the relation between life events and symptoms of low back pain increased, and that, in both organic and non-organic low back pain groups, life events could aggravate some symptoms of low back pain. The present study is in agreement with findings of Leavitt et al.[8] In that life stresses of the non-organic low back pain are significantly related to emotional disorders. Mirskey and Spear,[15] however, pointed out that sensual characteristics is related to tissue damage, the present study does not support this point. The present study indicates, however, that life stresses will intensity the emotional characteristics of the non-demorstrated organic low back pain.

References:

1. Engel GL: Psychogenic pain and the pain prone patient, Am J Med, 26:899-918, 1959.
2. Crown S: Psychological aspects of low back pain, Rheumatol Rehabil, 17:114-124, 1978.
3. Sternbach RA: Psychological aspects of chronic pain, Clin orthop, 129:150-155, 1977.
4. Galdwell AB and Chase C: Diagnosis and treatment of pershonality factors in chronic low back pain, Clin Orthop, 129:141-149, 1977.
5. Waddell G, Main CJ et al: Normality and reliability in the clinical assessment of backache, Br Med J, 284:1519-1523, 1982.
6. Ryden O, Lindal E et al: Differentiation of back pain patients using a pain questionnaire, Scand J Rehab Med, 17:155-161, 1985.
7. Keel PJ: Psychoscocial criteria for patient selection: review of studies and concepts for understanding chronic back pain, Neurosurgery, 15(6):935-941, 1984.
8. Leavitt F, Garron DC and Bieliauşkas LA: Stressing life events and the experience of low back pain, J Psychosom Res, 23:49-55, 1979.
9. Nwuga VCB: Relationship between low back pain and life-stressing events among Nigerian patients, J Trop Med Hyg, 88:17-20, 1985.
10. Feurestlein M, Sunt S and Houl M: Environmental stressor and chronic low back pain: life events, family and work environment, Pain, 22:295-307, 1985.
11. Sternbach RA: Pain and "Hassles" in the United States: findings of the Nuprin pain report, Pain, 27:69-80, 1986.
12. Svensson HO, Anderson GBJ: The relationship of low-back pain, work environment, and stress: a retrospective cross-sectional study of 38-to-64 year old women, Spine, 14(5):517-522, 1988.
13. Huang, Hung-Chi Pei, Lu: Stress Perception of life events in adults in Taiwan Area, Public Health 16(1):73-92, 1989.
14. Craufurd DIO, Creed F and Jayson MIV: Life events and psychological distrubrance in patients with low-back pain, Spine, 15(6):490-494, 1990.
15. Merskerv H, Spear FG: Pain: Psychological and psychiatric aspects, willian & Wilkins, Baltimore, MD, 1967.

Table 1. Life Stresses by Basic Characteristics

Item	No. of Stressing Life Events			Life Change Unit		
	Mean	SD	t value	Mean	SD	t value
Sex:			1.49			1.47
Male	1.93	3.15		95.60	156.70	
Female	2.74	4.76		136.25	241.72	

Item	No. of Stressing Life Events			Life Change Unit		
	Mean	SD	F value	Mean	SD	F value
Age:			2.33			2.07
20-35	3.13	4.99		154.13	252.29	
36-50	2.42	4.27		219.83	211.87	
51-65	1.56	2.88		83.62	150.84	
Marital status:			1.98			1.62
Married	3.28	3.93		157.40	188.70	
Unmarried	2.22	4.31		112.00	220.61	
Widowed/divorced	0.92	0.90		45.23	43.46	
Education:			2.05			1.71
College and above	2.27	4.52		135.99	227.17	
Senior high	2.77	4.43		136.51	223.02	
Junior high and below	1.53	3.17		79.02	164.41	
Income:			0.73			0.72
–20,000	2.07	2.69		102.64	187.53	
2-40,000	2.71	4.58		135.33	230.98	
40,000+	2.94	4.88		145.36	242.03	
Diagnosis:			12.23***			11.43***
Hernia of inter vertebral disc	2.12	3.76		106.20	192.38	
Degenerative joint disease	1.19	1.96		59.41	98.65	
non-demorstrated organic low back pain	4.50	5.89		221.87	297.30	

Non-demorstrated organic low back pain includes Myofascial pain symdrome, Lumber sprain and Sacrol iliac sprain.

The by Scheff's method shows that values of non-demorstrated organic low back pain are significantly higher than those of ($p<0.05$).

Table 2. Relationship Between Life Stresses and Seriousness of Pain by Diagnostic Groups

Seriousness	Hernia of inter-vertebral disc		Degenerative joint disease		non-demorstrated organic low back pain	
	No.	Score	No.	Score	No.	Score
Subjective seriousness	–0.05	–0.01	0.02	0.02	0.16	0.16
Objective seriousness	–0.01	–0.09	0.02	0.03	0.18	0.18

Correration coefficents of above not significant (P>0.05).
No : number of life stress enents
Score: life change unit.

Table 3. Relatipnship Between Life Stresses and Characteristics of Low Back Pain by Dignostic Groups

Attribute	Hernia of inter-vertebral disc		Degenerative joint disease		non-demorstrated organic low back pain	
	No.	Score	No.	Score	No.	Score
Severe emotional discomfort	0.03	0.05	0.18	0.19	0.34*	0.34*
Mild pressure sensation	–0.07	0.02	0.22	0.23	0.27	0.28
Moderate bright pressure sensation	– 0.04	– 0.02	0.04	0.07	0.14	0.14
Mild skin pressure sensation	– 0.06	0.01	0.19	0.20	– 0.02	0.04
Moderate constant burning sensation	0.01	0.08	0.07	0.10	0.06	0.05
Moderate intermittent hoat sensation	– 0.14	– 0.09	– 0.02	–0.02	0.43**	0.44**
Severe throbbing pressure sensation	0.04	– 0.01	0.18	0.18	0.29	0.28

*p<0.01, **p<0.001
No : number of life stress events
Score: life change unit