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의학석사 학위논문

Prevalence of depressive
symptoms in patients with chronic
pain with no history of psychiatric
diseases

정신과적 병력이 없는 만성통증 환자의
우울증상 유병률

2017년 2월

서울대학교 대학원
의학과 마취통증의학 전공
이 호 진

Master's Thesis of Medical Science

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February 2017

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이 논문을 의학석사 학위논문으로 제출함

2017년 1월

서울대학교 대학원

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Abstract

Prevalence of depressive symptoms in patients with chronic pain with no history of psychiatric diseases

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Background

Depression is the most common psychiatric disease related to chronic pain. The incidence of depression is higher among patients with chronic pain than in the general population. In Korea, the study of these comorbidities is insufficient. We aimed to investigate the prevalence of unrecognized depressive symptoms in patients with chronic pain with no history of psychiatric diseases.

Methods

Patients with chronic pain for more than six months with no history of psychiatric disease were selected. The Beck Depression Index (BDI) self-reported questionnaire and Pittsburgh Sleep Quality Index (PSQI) self-reported questionnaire were used to evaluate depressive symptoms and sleep disturbances

respectively. Socio-demographic characteristics and pain-related characteristics were recorded.

Results

Ninety-four patients participated in this study. Based on the BDI score, 35.1% of patients with chronic pain had comorbid depressive symptoms. The prevalence of depressive symptoms was significantly higher than in the general population ($P < 0.001$, 95% CI: 25.73–45.71). The standardized incidence ratio, adjusted for age and sex, was 2.77 in men and 2.60 in women. Patients with low education levels (OR = 14.022, 95% CI: 2.393–94.303, $P = 0.004$), who were unmarried (OR = 32.514, 95% CI: 3.076–343.681, $P = 0.004$), who were not economically active (OR = 5.274, 95% CI: 1.022–27.212, $P = 0.047$), and who had higher NRS score (OR = 1.564, 95% CI: 1.084–2.256, $P = 0.017$) were more likely to have moderate to severe depressive symptoms.

Conclusions

The results indicate that unrecognized depressive symptoms in patients with chronic pain are common. Pain physicians should pay particular attention to the psychological problems of patients with chronic pain.

Keyword : Chronic pain, Depression, Pain clinics, Prevalence, Diagnosis

Student Number : 2015–22014

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INTRODUCTION

Pain is a subjective and personal experience. The International Association for the Study of Pain (IASP) defined pain as “an unpleasant sensation and emotional experience associated with a real or potential damage to tissue, or the equivalent of such damage” (1). This means that pain occurs not only because of disease associated with tissue damage but also because of the emotional state of patients. Pain-related emotional states are mainly negative, and include depression, anxiety, and anger. A number of studies have reported that these are associated with chronic pain (2-4). Patients with chronic pain have been reported to have a greater prevalence of psychiatric diseases than the general population (5).

Depression is one of the most common psychiatric diseases related to chronic pain, and the incidence of depression is higher in patients with chronic pain than in the general population (6). The most recently reported lifetime prevalence for major depressive disorder in Korea was 6.7% (4.8% in men and 9.1% in women), thereby showing an increasing trend compared with 2001 and 2006 (7). The prevalence of depression in patients with chronic pain in Korea has not yet been reported. For other countries, Tyler et al. reported that the prevalence of major depressive disorder among patients with chronic pain was between 30% and 40% (8). In addition, Miller et al. conducted a study on 1,179 residents in Michigan State and reported that 21.9% of residents had chronic pain, and 35% of them had comorbid depression (9). In Korea, Kim et al. performed the Beck depression index (BDI) scale on 97 patients with spinal stenosis, and 54 patients (55.7%) showed scores higher than the threshold point (14 points was considered the threshold point in this study) (10).

A number of researchers have reported the impact of depression on the outcome of patients with chronic pain (11-13). If patients with chronic pain have comorbid depression they experience more intense pain (11), and a longer duration of pain (13). It was also reported that comorbid depression was a significant predictor of persistent pain onset (6) and decreases active coping in patients suffering from pain (14). Depression itself can cause pain (15). In the Guidelines for Adult Depression by the US Department of Health and Human Services (HHS), patients with chronic pain should be considered a high risk group for depression, and it is recommended that depression screening tests be performed in this population (16).

However, a number of researchers have reported that many depression cases are missed by non-psychiatric physicians (17-19). At the pain center, the focus of patients tends to be primarily on physical pain rather than psychological problems and pain physicians also focus on diagnosis and treatment. The evaluation of such comorbidities is mainly dependent on the previous history or symptoms described by patients voluntarily. We assumed that depression in patients with chronic pain cannot be easily recognized by such methods because of low psychiatric service utilization rates (7), and the negative perceptions about psychiatric diseases in Korea (20).

This study aimed to determine the prevalence of unrecognized depressive symptoms in patients with chronic pain, and their association with sociodemographic factors. In addition, we investigated the characteristics of patients with chronic pain who were at risk for depression.

METHODS

Subjects

Patients with chronic pain for more than 6 months without a history of psychiatric disease were selected for this study. Those who did not agree to the study or who had difficulty understanding the contents of questionnaires were excluded. In total, 109 participants completed a self-administered questionnaire survey and were interviewed by an anesthesiology resident before meeting a pain physician. This study was approved by our hospital's Institutional Review Board and performed after informed consent was obtained from patients.

Self-reported measure of depression

We used the Beck Depression Index (BDI) self-reported questionnaire to evaluate depression. The BDI is widely used, since its efficiency has been proven in clinical groups. The validity and reliability of the Korean version of the BDI has been confirmed in the Korean population (21). The BDI has been recommended as a sensitive test for depression in patients with chronic pain (22). Anthony W. Love reported that the BDI was the most efficient test and screening device available for identifying depression in patients with chronic low back pain (23). The BDI consists of 21 self-rated questions that evaluate mood in the last week. Each question is rated on a scale of 0–3, to a total score 0–63. Beck classified scores from 0–9 as “not depressed,” 10–15 as “mild depression,” 16–23 as “major depression,” and over 24 as “severe depression” (24). However, since Koreans are reported to have a higher average BDI, a threshold point between 16 and 21 has been proposed for this population. Lee et al. reported that threshold points are

significantly different depending on sex and age in the Korean version of the BDI standardization study (21). They classified male patients with a score of 16–19 as having “depressive tendencies,” 20–23 as having “depression,” and over 24 as having “severe depression.” In female patients, those with a score of 17–20 were classified as having “depressive tendencies,” 21–24 as having “depression,” and over 25 as having “severe depression” (18). In this study, the threshold point for depressive symptoms was set as 16 for men and 17 for women. Severity of depressive symptoms was also assessed according to the score as 16-19, 20-23 and over 24 were taken as mild, moderate and severe respectively in men. And 17-20, 21-24 and over 25 were taken as mild, moderate and severe respectively in women. Pain physicians were aware of this ongoing survey; however, they were blinded to the results of the questionnaires.

Self-reported measure of sleep disturbances

The Pittsburgh Sleep Quality Index (PSQI) is the scale most frequently used to evaluate quality of sleep and sleep disturbances. Its reliability and validity have been proven (25). It consists of 19 self-rated questions and seven categories such as subjective sleep quality, sleep latency, sleep duration, habitual sleep efficiency, sleep disturbances, use of sleeping medication, and daytime dysfunction. As the seven sub-categories are graded from 0 to 3, the total range of points was 0–21. A higher score means more severe sleep disturbances. In this study, the threshold point for poor sleep was set as 6 (26).

Primary endpoint and power analysis

The primary endpoint was the prevalence of depressive symptoms. We calculated that the number of patients required for the detection of a difference of 10% in the prevalence of depressive symptoms between this study and general population, including a 10% dropout rate, using a two-sided binomial test at a significance level of 0.05 and 80% power was 108. These results assume that the prevalence of depressive symptoms in the general population is 10.3%, referring to the Korea National Health and Nutrition Examination Survey (KNHANES) VI -1 which was conducted in 2013 (27).

Statistical analysis

All statistical analyses were performed using R statistical software version 3.2.3 (R Foundation for Statistical Computing, Vienna, Austria) and indirect standardization was performed using EpiTools version 0.5–7, for epidemiological analysis (28). Data are presented as the mean \pm SD or number (%). Comparisons were conducted using a Student's *t*-test and Pearson's chi-square test. Pearson's correlation coefficients among BDI, PSQI, severity of pain (NRS, numeric rating scale) and duration of pain (year) were calculated. In all analyses, $P < 0.05$ indicated a statistically significant difference.

The factors associated with moderate to severe depressive symptoms were examined using a logistic regression analysis. Moderate depressive symptoms were defined as a BDI score ≥ 20 (men) or ≥ 21 (women). This was used as a dependent variable in a multivariate logistic regression analysis to evaluate the odds ratios and 95% confidence intervals of related factors. The independent variables with a P value less than 0.2 in univariate logistic regression were assessed using a multiple logistic regression analysis.

RESULTS

Results from a total of 94 participants (28 men and 66 women) were subjected to analysis, following the exclusion of 14 participants whose responses to the questionnaire were incomplete or for whom information on sociodemographic variables was insufficient.

Prevalence of depressive symptoms

The mean BDI scores for the total number of patients, for men, and women were 14.84 ± 10.9 , 12.7 ± 14.0 , and 15.7 ± 9.3 , respectively. The prevalence of depressive symptoms, defined by a threshold score of 16 (men) or 17 (women), for the total number of patients was 35.1% (21.4% in men and 40.9% in women). The patients who were found to be depressed were graded according to the severity as shown in the Table 1. Education level, marital status, occupation, monthly income, and self-reported sleep disturbances were significantly different between groups (Table 2).

We used a one-sample proportion test with continuity correction to assess whether the prevalence of depressive symptoms in this study is significantly different from that of the general population. When referring to the KNHANES VI-1 that reported a 10.3% prevalence of depressive symptoms in the general population (27), the prevalence of depressive symptoms in this study is significantly higher than that of the general population ($\chi_2 = 59.951$, $df=1$, $P < 0.001$, 95% CI: 25.73–45.71%). The prevalence of depressive symptoms was also adjusted for age and sex by indirect standardization to the general population because the prevalence of depressive symptoms varies in accordance with age and

sex (Table 3). This was done by correcting the actual distribution of the prevalence of depressive symptoms and comparing it with the distribution that would be observed if all individuals had the same mean age-sex effects as the general population. Hence, we used the original data of the KNHANES VI-1. Consequently, the standardized incidence ratios (SIRs) of male sex and female sex on depressive symptoms were 2.77 (95% CI: 1.78–6.17) and 2.60 (95% CI: 1.25–3.79), respectively.

On interview, 48 patients (51.0%) complained of sleep disturbances, while 75 patients (80.0%) had a score > 5 in the PSQI, which is the threshold point for poor sleep. Seven patients did not answer the PSQI. All patients with depressive symptoms were classified as poor sleepers on the PSQI. Pearson correlations among BDI, PSQI, NRS and duration of pain are presented in Table 4.

The association between depressive symptoms and sociodemographic factors

Table 5. shows the results of a multivariate logistic regression analysis in which the regression of presence or absence of moderate to severe depressive symptoms on sociodemographic and pain-related characteristics was analyzed. Patients who had a lower level of education, were never married, were not economically active and had more severe pain were likely to have significantly higher frequencies of depressive symptoms than their counterparts in other categories had.

Follow-up results of patients with depressive symptoms

The observation period after survey varied between 2 and 11 months. During the period, we identified whether patients with depressive symptoms received psychiatric management using electronic medical records. As a result, only two

patients received treatment in the psychiatric department during this period. One patient was suspected to have a somatoform disorder and was referred to a psychiatrist by a pain physician. The patient is currently receiving treatment for depression from a psychiatrist. Another patient attended a psychiatrist voluntarily, was diagnosed with depression, and is also currently receiving treatment. Their BDI scores were 28 and 40, respectively. One other patient complained of depressive symptoms to a pain physician. The patient had a BDI score of 20. However, this patient was not referred to a psychiatrist and further evaluations were not performed.

Suicidal ideation

Regarding the question on suicide in the BDI, 24 patients (25.5%) were found to have suicidal ideation. We used a one-sample proportion test with continuity correction to assess whether the prevalence of suicidal ideation in this study is significantly different from that of the general population. When referring to the KNHANES V-3 that reported a 13.1% prevalence of suicidal ideation in the general population (27), the prevalence of suicidal ideation in this study is significantly higher than that of the general population ($\chi_2 = 11.693$, $df=1$, $P < 0.001$, 95% CI: 17.34–35.75%). Among them, 5 patients answered, “I would like to kill myself,” and one patient answered “I would kill myself if I had the chance.” Their median BDI were 36.0 (25.0-41.0). However, of these only 1 patient was treated for depression.

DISCUSSION

In this study, the prevalence of depressive symptoms in patients with chronic pain without a history of psychiatric diseases was 35.1%, which is similar to the results from previous epidemiologic studies (8, 9). However, unlike previous studies, this study targeted only patients with chronic pain without a history of psychiatric diseases. Despite the selection of patients without a psychiatric history, the prevalence of depressive symptoms in this study is significantly higher than that of the general population. It was even more problematic that only a few patients with depressive symptoms were recognized by pain physicians and only one out of six patients with moderate or severe suicidal ideation received psychiatric treatment. Considering that these patients have not received psychiatric services before and low psychiatric service utilization rate in Korea (7), they are unlikely to receive appropriate treatment in the future.

There are many potential reasons for the under-recognition of depressive symptoms in patients with chronic pain. Patient and provider barriers have been identified. Patients usually complain about physical symptoms rather than psychiatric problems to their physician (29). In this study, there were only 2 patients who mentioned depressive symptoms to their doctor voluntarily. Many patients are afraid of using psychiatric services or being labeled with a psychiatric illness (30). In Korea, stigmatization associated with shame has been suggested as a barrier to the use of psychiatric services (31). The psychiatric service utilization rate in Korea is much lower than that in other developed countries. According to a 2011 epidemiologic investigation on psychiatric diseases, only 15.3% out of those with psychiatric disease have discussed their mental health with a psychiatrist,

other physicians, or mental health professionals (7). In the USA, the psychiatric service utilization rate because of depression was 39.2% in 2010 (32). In addition, the utilization rate reported in the USA is the rate for a one-year period; however, the utilization rate reported in Korea is the lifetime rate. Therefore, the actual gap is much larger. Various barriers with providers have also been recognized, including time pressure, inadequate knowledge about diagnostic criteria, or lack of psychiatric direction (33). The latter two were not identified in this study. However, time limitations were evident in this study. In this study, the time given to each patient was approximately 5 minutes, which is not much different from other hospitals in Korea. Lee et al. reported in their study on 79,561 outpatients from the National Health Care Ilsan Hospital that the average consultation time per patient was 4.2 minutes (34). Furthermore, patients' pain can be a barrier in recognizing psychiatric problems in these situations. Marco M, et al reported if patients complained about pain, their depression was often unrecognized. For this phenomenon, they suggested that if patients complained about pain, physicians might spend a lot of time looking for the organic causes of pain and diagnostic procedures (35). Another study reported that patients' pain affects physician's practice behaviors in primary care. They reported that if patients complained about pain, the physician was likely to spend more time on technical behaviors, such as doing physical examination or procedure and discussing diagnostic and therapeutic strategies (36). 4.2 minutes is too short even for these things. Consequently, it is common for depression to be unrecognized in patients with chronic pain and it in turn remains undertreated.

The results of this study show that the detection of patients with depressive symptoms using only history and voluntary information is insufficient. The US

Preventive Services Task Force (USPSTF) recommended that depression screening should be carried out in all adults, although patients are not mentioned in its recent guidelines (37). Considering the busy schedule of outpatient examinations, a simple and sensitive screening test is needed to screen large numbers of patients. The aforementioned 2016 USPSTF Recommendation Guidelines proposed the “Patient Health Questionnaire-2 (PHQ-2),” which was developed by Spitzer et al (37). As it examines only two items from the nine questions on the existing PHQ-9, such as depressive mood and anhedonia, it can be performed quickly and easily. A “Yes” answer to either question on the PHQ-2 showed 85–90% sensitivity, and answering “Yes” to both questions showed 95% sensitivity (38). Shin et al. reported that the Korean version of the PHQ-2 showed high reliability and validity, and that it would be useful for screening depression (39). As chronic pain itself is a strong risk factor for depression, the conductance of depression screening in all patients visiting a pain clinic is reasonable.

In this study, patients with a low education level (\leq middle school), who were never married, who were not economically active and who had more severe pain were more likely to have moderate to severe depressive symptoms associated with chronic pain. Low education level, divorce, and low economic status are risk factors for depression in Koreans reported in previous study (40). There was also a statistically significant relationship between the severity of pain and depressive symptoms. These results were also reported in previous studies (41, 42). Unlike the severity of pain, the duration of pain is not associated with depressive symptoms in this study. Previous study reported that the duration of pain was not associated with the onset of depression (42). The duration of pain is also an important factor in assessing pain. However, a pain score based on severity was a better indicator of

daily functioning and pain worrying than duration of pain (43).

Additionally, in this study, PSQI scores were significantly correlated with BDI scores and NRS (Table 4). Sleep disturbances are known to be a strong risk factor for both depression (44) and pain (45). Pain was reported to be the strongest predictive factor of sleep disturbances (31), and the management of sleep disturbances is also very important in patients with chronic pain because sleep disturbances are directly associated with treatment outcome in chronic pain (46). However, sleep disturbances are not only a risk factor for chronic pain and depression, but also a mediator between the two (47). Sleep disturbances can increase the risk of depression in patients with chronic pain (48). Therefore we should pay more attention to sleep disturbances in patients with chronic pain.

This study had several limitations. First, a non-psychiatrist diagnosed depressive symptoms using a simple screening tool. Although the screening test used in this study has proven reliability and validity, the preoccupation of patients can be involved in the resulting scores because it is a self-report tool. Second, there were limitations to using clinical diagnosis to screen depressive symptoms. Third, while recruiting patients, those who seemed to show depressive symptoms were reluctant to participate in this study. As such, this study may have missed patients with psychiatric disorders. Fourth, it may be difficult to generalize the results of this study because of the small sample size and the fact that it was a single center study. Finally, there is a possibility of underestimation because the identification of whether or not depression has been treated depends on the electronic medical record.

This study evaluated the depressive symptoms of patients with chronic pain using valid screening tools. Chronic pain and depression are frequently comorbid,

and may impair the quality of life of patients and reduce the effectiveness of treatment. However, depression in patients with chronic pain often goes undiagnosed and untreated. Although there are many studies on the relationship between depression and chronic pain, the results of these studies cannot be effective unless attention is paid to the psychological problems of patients. Pain physicians need to be aware that there are many patients who have unrecognized depressive symptoms and this should be taken into account when patients are being treated.

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Table 1. Severity grading of patients with depressive symptoms

Severity grading	Male (N=28)	Female (N=66)	Total (N=94)
None	22 (78.6%)	39 (59.1%)	61 (64.9%)
Mild	1 (3.6%)	6 (9.1%)	7 (7.4%)
Moderate	0 (0.0%)	11 (16.7%)	11 (11.7%)
Severe	5 (17.9%)	10 (15.2%)	15 (16.0%)

Table 2. Sociodemographic and pain-related characteristics between the depressed and the non-depressed patients

Sociodemographic and Pain related characteristics	Non-depressed (N=61)	Depressed (N=33)	P-value
Gender			0.116
Male	22 (36.1%)	6 (18.2%)	
Female	39 (63.9%)	27 (81.8%)	
Age (years)			0.080
19 ~ 29	5 (8.2%)	0 (0.0%)	
30 ~ 39	5 (8.2%)	7 (21.2%)	
40 ~ 49	9 (14.8%)	6 (18.2%)	
50 ~ 59	22 (36.1%)	7 (21.2%)	
60 ~ 69	13 (21.3%)	5 (15.2%)	
≥ 70	7 (11.5%)	8 (24.2%)	
Education (unit: year)			0.048
0 ~ 9	6 (9.8%)	9 (28.1%)	
≥ 10	55 (90.2%)	23 (71.9%)	
Marital status			0.048
With spouse	48 (78.7%)	18 (54.5%)	
Without spouse	7 (11.5%)	9 (27.3%)	
Never married	6 (9.8%)	6 (18.2%)	
Occupation			0.022
Not economically active	32 (52.5%)	26 (78.8%)	
Economically active	29 (47.5%)	7 (21.2%)	
Monthly income (unit: KRW)			0.018
0 ~ 1.0	8 (13.1%)	12 (36.4%)	
> 1.0	53 (86.9%)	21 (63.6%)	
Residential area			0.628
Urban	54 (88.5%)	31 (93.9%)	
Rural	7 (11.5%)	2 (6.1%)	
Systemic medical conditions	18 (29.5%)	14 (42.4%)	0.301
History of cancer	7 (11.5%)	0 (0.0%)	0.107
Duration of pain			0.688
6 months ~ 1 year	13 (21.3%)	8 (24.2%)	
1 year ~ 5 years	22 (36.1%)	9 (27.3%)	
≥ 5 years	26 (42.6%)	16 (48.5%)	
Severity of pain (NRS ¹)			0.682
Mild (NRS 1 ~ 3)	3 (4.9%)	2 (6.1%)	
Moderate (NRS 4 ~ 6)	24 (39.3%)	10 (30.3%)	

Sociodemographic and Pain related characteristics	Non-depressed (N=61)	Depressed (N=33)	P-value
Severe (NRS 7 ~ 10)	34 (55.7%)	21 (63.6%)	
Self-reported Sleep disturbance ²	23 (37.7%)	25 (75.8%)	0.001
Suicidal ideation ³	5 (8.2%)	19 (57.6%)	0.000
BDI	8.0 [4.0;12.0]	24.0 [21.0;32.0]	0.000
PSQI	8.5 ± 3.6	12.4 ± 3.9	0.000

¹NRS: numeric rating scale

²Sleep disturbance that patients complain when they are interviewed

³More than one point on the question of suicidal ideation in BDI

Table 3. Results of indirect standardization by gender and age

	Depressed		SIR ²	95% Confidence Interval for OR	
	Observed	Expected ¹		Lower	Upper
Male	6	2.16	2.77	1.25	6.17
Female	27	10.39	2.60	1.78	3.79

¹The prevalence was based on Korea National Health and Nutrition Examination Survey (KNHANES) VI, 2013.

²Standardized Incidence Ratio

Table 4. Pearson correlations between BDI, PSQI, severity of pain (NRS) and duration of pain

	BDI	PSQI	NRS ¹	Duration of pain (yr)
BDI	-	0.608**	0.168	0.123
PSQI	0.608**	-	0.258*	0.147
NRS	0.168	0.258*	-	0.204*
Duration of pain	0.123	0.147	0.204*	-

*P < 0.05, ** P < 0.01

¹NRS: numeric rating scale

Table 5. Logistic regression analysis for factors associated with moderate to severe depressive symptoms

	<i>P</i> -value	Odds Ratio (OR)	95% Confidence Interval for OR	
			Lower	Upper
Female	0.182	2.65	0.634	11.074
Age	0.264	0.715	0.397	1.288
Low education level (0 - 9 years)	0.004	14.022	2.393	94.303
With spouse	0.015			
Without spouse	0.278	2.371	0.499	11.274
Never married	0.004	32.514	3.076	343.681
Not economically active	0.047	5.274	1.022	27.212
Low monthly income	0.513	0.576	0.111	3.001
Residence (rural)	0.334	0.253	0.015	4.123
Duration of Pain ¹	0.348	0.688	0.315	1.502
Severity of Pain (NRS)	0.017	1.564	1.084	2.256

¹Duration of pain: 6 months ~ 1 year, 1year ~ 5years, ≥ 5 years

국문초록

서론: 우울증은 만성통증과 연관된 가장 흔한 정신과 질환이다. 만성통증 환자의 우울증 유병률은 일반인구 집단에 비해 높다고 보고되었다. 하지만 한국에서는 이와 같은 동반질환에 대한 연구가 부족한 실정이다. 본 연구진은 정신과적 병력이 없는 만성통증 환자의 진단되지 않은 우울증상의 유병률에 대해 알아보고자 하였다.

방법: 본 연구는 6개월 이상의 만성통증을 호소하는 환자들을 대상으로 백우울척도 자가설문지와 피츠버그 수면질지수 자가설문지를 이용하여 각각 우울증상과 수면장애를 평가하였다. 또한 환자들의 사회인구학적 변수들과 통증과 연관된 변수들을 기록하였다.

결과: 총 94명의 환자들을 대상으로 분석하였다. 백우울척도 점수를 기반으로 했을 때 만성통증 환자의 35.1%가 우울증상을 가지고 있었으며 우울증상의 유병률은 일반인구 집단에 비해 유의하게 높았다. ($P < 0.001$, 95% CI: 25.73–45.71). 연령과 성별을 보정한 간접표준화 방법을 사용한 결과 일반인구 집단에 비해 남자의 우울증상 유병률은 2.77배, 여자의 우울증상 유병률은 2.60배 더 높은 것으로 나타났다. 또한 교육수준이 낮은 경우 (OR = 14.022, 95% CI: 2.393–94.303, $P = 0.004$), 미혼인 경우 (OR = 32.514, 95% CI: 3.076–343.681, $P = 0.004$), 경제활동을 하지 않는 경우 (OR = 5.274, 95% CI: 1.022–27.212, $P = 0.047$), 그리고 숫자통증등급이 높은 경우 (OR = 1.564, 95% CI: 1.084–2.256, $P = 0.017$) 중등도 이상의 우울증상을 가지고 있을 가능성이 더 높은 것으로 나타났다.

결론: 이 연구는 만성통증 환자에서 인지되지 않은 우울증상을 가진 환자들이 흔하다는 사실을 보여주었다. 통증전문의를 만성통증 환자의 정신과적 문제에 대해 특별한 관심을 가져야 하겠다.

주요어: 만성통증, 우울증, 통증클리닉, 유병률, 진단

학번: 2015-22014