

Evaluation of Temporomandibular Disorders with Tension-Type Headache by Gender

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This study was designed to evaluate the Temporomandibular Disorders(TMD) with Tension-Type Headache(TTH) by gender. Patients with TMD and/or TTH visited the Department of Oral Medicine, Kyung Hee University Dental Hospital were recruited to this study. Experimental group(n=60) is composed of TMD with TTH and control group(n=111) is composed of TMD without TTH. Evaluation list was pain quality, pain intensity, pain laterality, pain increase by routine physical activity and then it was analyzed statistically.

The results were as follows ;

1. In the control group, pain quality was significantly different by gender($p=0.04$). But, in the experimental group, pain quality was not significantly different by gender.
2. In the control group, pain intensity was not significantly different by gender. And, in the experimental group, pain intensity was not significantly different by gender.
3. In the control group, pain laterality was not significantly different by gender. And, in the experimental group, pain laterality was not significantly different by gender.
4. In the control group, pain increase by routine physical activity was not significantly different by gender. And, in the experimental group, pain increase by routine physical activity was not significantly different by gender.

Therefore, it is considered that not temporomandibular disorder patients with tension-type headache but temporomandibular disorder patients without tension-type headache was influenced by gender in the pain quality.

Key words: Temporomandibular Disorders, Tension-Type Headache, Gender

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I. INTRODUCTION

A headache is a type of pain that everyone is subject to struggling with in their daily lives. In 1962, the Ad Hoc Committee has been the first to categorize headaches into migraines, muscle contraction headache, combined headache and so on.¹⁾ Later in 1988, the International Headache Society reclassified into primary headaches such as migraines, tension-type headache, clusters headache, the uncategorized headaches, and secondary headaches associated with head injury, vascular

disorders, metabolism disorders, facial disorders including the teeth and the oral cavity. Tension-type headache(TTH), in particular, was classified into episodic and chronic depending on the date of the outbreak, and these were further subdivided into those associated with the muscles surrounding the cranium or not.²⁾ In 2004, based on the previous classifications, tension -type headaches were further categorized into infrequent episodic tension-type headache, frequent episodic tension-type headache, and chronic tension-type headaches.³⁾

Tension-type headaches are those from which a patient feels that the both temporalis muscles or occipital region are being pressured or squeezed.⁴⁾ Tension-type headache diagnosis standards suggested by the International Headache Society include pain quality, pain intensity, pain laterality, pain increase due to daily activities, as well as symptoms including nausea, vomiting, photophobia, phonophobia, etc.³⁾ According to the studies done by Rasmussen et al⁵⁾, tension-type headaches cause pain of being tightened up, and the pain intensity is either mild or moderate. The source of the pain is laterality; it is featured by not being easily worsened by routine physical activities.⁶⁾ The exact causes of tension-type headaches are yet to be discovered, but a few possible causes have been suggested.⁷⁾

After Chun and Hong's⁸⁾ introduction to the relation between tension-type headaches and dentistry in 2003, there have been dental evaluations by Lee et al⁹⁾, clinical comparisons focusing on tension-type headaches and the pain of temporomandibular disorders by Auh et al¹⁰⁾, studies on the correlation of tension-type headaches and bruxism by Huh et al¹¹⁾, studies on the effects that pain of the temporomandibular joint and masticatory muscle have on tension-type headaches by Kim et al¹²⁾, as well as studies on temporomandibular joint-muscle pain of tension-type headache patients by Oh et al.¹³⁾

Therefore, this study has been initiated in order to examine the ways in which tension-type headaches are shown in patients with temporomandibular disorders by gender, and to eventually discover the

interrelation between temporomandibular disorders and tension-type headaches.

II. MATERIALS AND METHODS

Among the temporomandibular disorder(TMD) patients who felt pain around the mouth and/or face that visited the Department of Oral Medicine of Kyung Hee University Dental Hospital between July 1st and August 31st, 2008, 60 patients with tension-type headaches that correspond to the diagnosis standards given by the International Headache Society³⁾ were recruited as the experimental group, while 111 other patients without tension-type headaches(TTH) were recruited as the control group.

This study used ordinary dental examination records, temporomandibular disorder examination records, and additional survey results for basic information including the patient's gender, chief complaint, and onset of pain, as well as detailed information including pain quality, intensity, laterality, and increase by routine physical activities. Pain quality was divided into sharp pain and dull pain; pain intensity was divided into mild pain and severe pain; pain laterality was divided into bilateral pain and unilateral pain; pain increase by routine physical activities such as talking or walking was divided into no change in pain and increase in pain.

Data from the aforementioned process were analyzed through descriptive statistics(%), the significance test using a significance level of 0.05, and crosstabulation analysis in other words Pearson's Chi-square test. Results from the study were obtained by using version 12.0 of the Statistical Package for Social Sciences(SPSS).

III. RESULTS

1. Evaluation of Pain Quality

The evaluation of pain quality, divided into dull pain and sharp pain, resulted in the distribution of the control group and experimental group as shown in

Table 1. Distribution of pain quality by gender

(gender)	control group (%)			experimental group (%)		
	dull pain	sharp pain	Total	dull pain	sharp pain	Total
male	64(95.5)	3(4.5)	67(100.0)	37(82.2)	8(17.8)	45(100.0)
female	37(84.1)	7(15.9)	44(100.0)	11(73.3)	4(26.7)	15(100.0)
p	.040 *		(n=111)	.456(NS)		(n=60)

NS: not significant, *: p value < 0.05

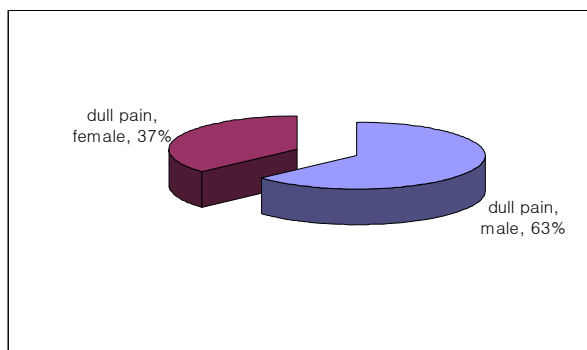


Fig. 1. This pie chart shows the ratio of dull pain in the temporomandibular disorders patients without tension-type headache.

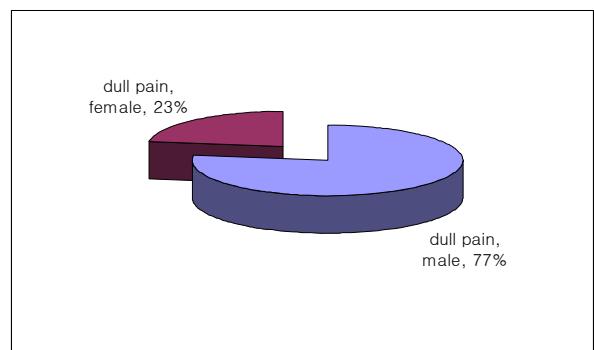


Fig. 3. This pie chart shows the ratio of dull pain in the temporomandibular disorders patients with tension-type headache.

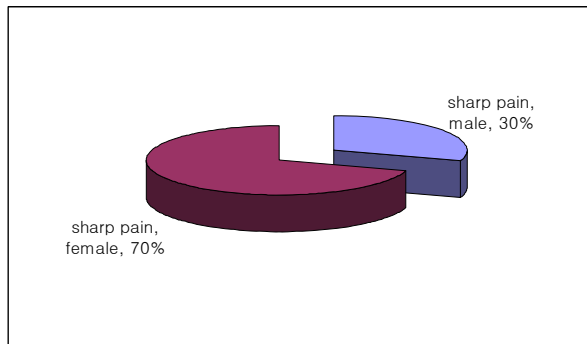


Fig. 2. This pie chart shows the ratio of sharp pain in the temporomandibular disorders patients without tension-type headache.

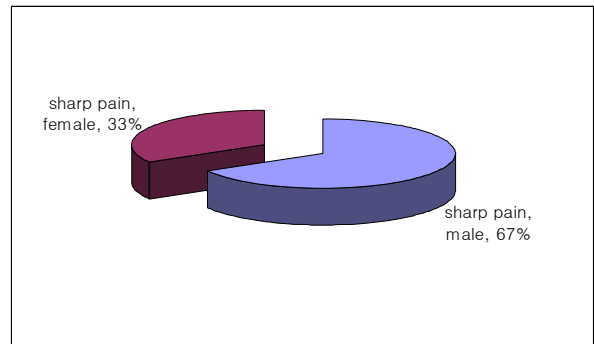


Fig. 4. This pie chart shows the ratio of sharp pain in the temporomandibular disorders patients with tension-type headache.

Table 1. In the control group, 64 males(63%) and 37 females(37%) had dull pain (Fig.1), while 3 males(30%) and 7 females(70%) had sharp pain (Fig. 2). On the other hand, in the experimental group, 37 males(77%) and 11 females(23%) had dull pain (Fig.

3), while 8 males(67%) and 4 females(33%) had sharp pain (Fig. 4).

In the control group, 64 males had dull pain, while a smaller number of females, 37, experienced the particular kind of pain (Fig. 5). In the same group,

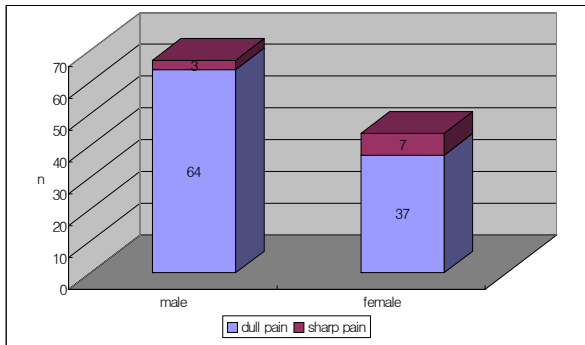


Fig. 5. This bar graph shows the distribution of dull pain and sharp pain in the temporomandibular disorders patients without tension-type headache.

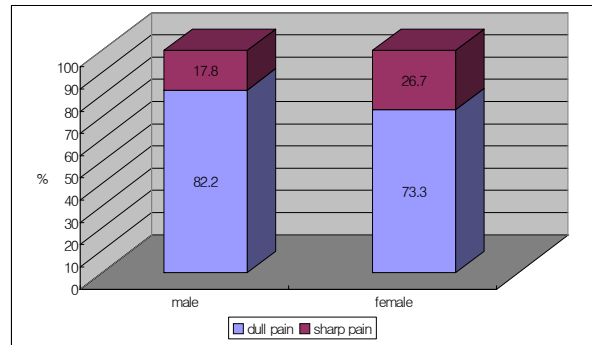


Fig. 8. This bar graph shows the ratio of dull pain and sharp pain in the temporomandibular disorders patients with tension-type headache.

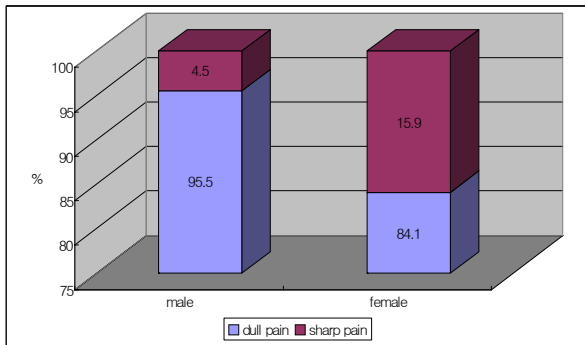


Fig. 6. This bar graph shows the ratio of dull pain and sharp pain in the temporomandibular disorders patients without tension-type headache.

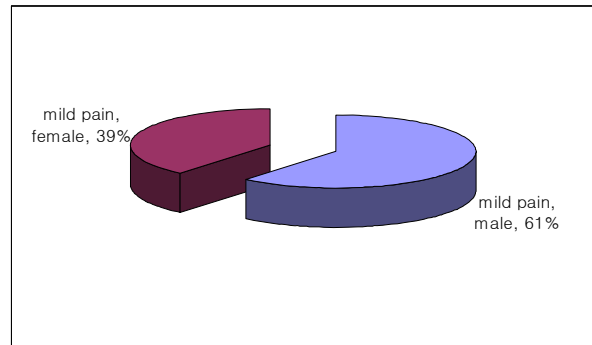


Fig. 9. This pie chart shows the ratio of mild pain in the temporomandibular disorders patients without tension-type headache.

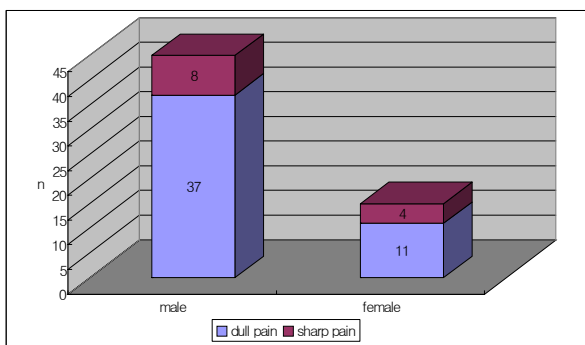


Fig. 7. This bar graph shows the distribution of dull pain and sharp pain in the temporomandibular disorders patients with tension-type headache.

the percentage difference of dull pain and sharp pain was shown to be 95.5% in males and 84.1% in females (Fig. 6). In contrast, in the experimental group, 37 males had dull pain, while only 11 females experienced the same kind of pain (Fig. 7). In this group, the percentage difference of dull pain and sharp pain came out as 82.2% in males and 73.3% in females (Fig. 8).

The control group, which was evaluated in terms of dull pain and sharp pain, had a statistical significance ($p=0.040$). However, the experimental group did not have a statistical significance ($p=0.456$).

Table 2. Distribution of pain intensity by gender

(gender)	control group (%)			experimental group (%)		
	mild pain	severe pain	Total	mild pain	severe pain	Total
male	61(91.0)	6(9.0)	67(100.0)	40(88.9)	5(11.1)	45(100.0)
female	39(88.6)	5(11.4)	44(100.0)	13(86.7)	2(13.3)	15(100.0)
p	.678(NS)		(n=111)	.816(NS)		(n=60)

NS: not significant

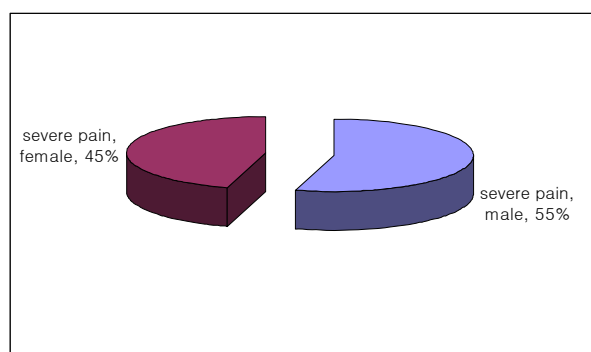


Fig. 10. This pie chart shows the ratio of severe pain in the temporomandibular disorders patients without tension-type headache.

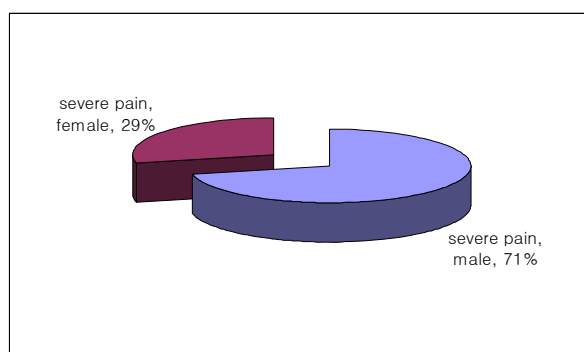


Fig. 12. This pie chart shows the ratio of severe pain in the temporomandibular disorders patients with tension-type headache.

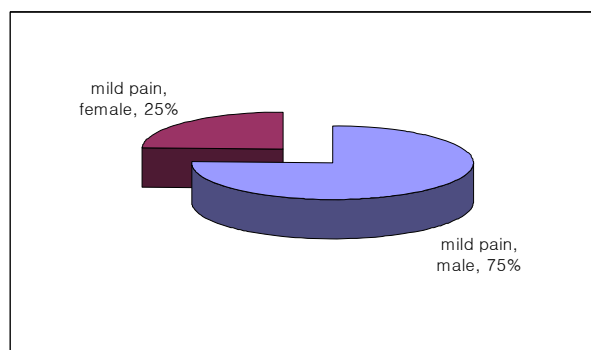


Fig. 11. This pie chart shows the ratio of mild pain in the temporomandibular disorders patients with tension-type headache.

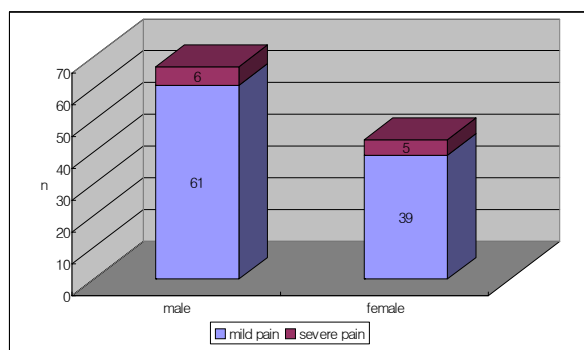


Fig. 13. This bar graph shows the distribution of mild pain and severe pain in the temporomandibular disorders patients without tension-type headache.

2. Evaluation of Pain Intensity

The evaluation of pain intensity, divided into mild pain and severe pain, resulted in the distribution of the control group and experimental group as shown

in Table 2. In the control group, 61 males(61%) and 39 females(39%) had mild pain (Fig. 9), while 6 males(55%) and 5 females(45%) had severe pain (Fig. 10). On the other hand, in the experimental

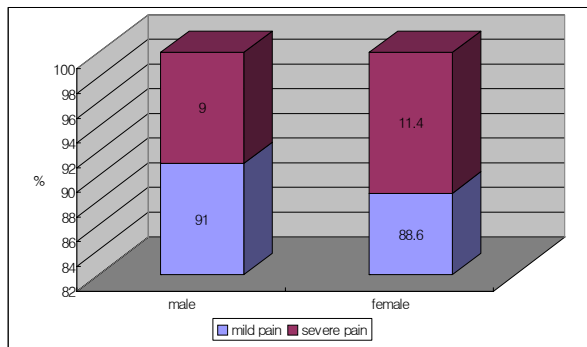


Fig. 14. This bar graph shows the ratio of mild pain and severe pain in the temporomandibular disorders patients without tension-type headache.

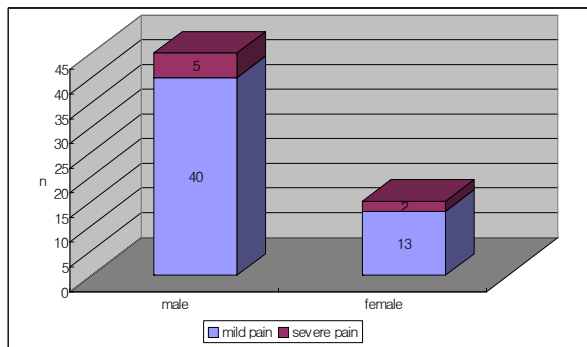


Fig. 15. This bar graph shows the distribution of mild pain and severe pain in the temporomandibular disorders patients with tension-type headache.

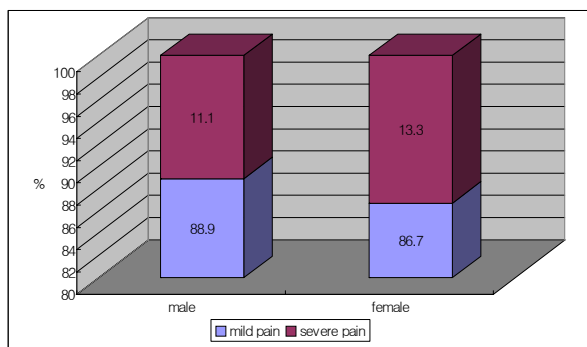


Fig. 16. This bar graph shows the ratio of mild pain and severe pain in the temporomandibular disorders patients with tension-type headache.

group, 40 males(75%) and 13 females(25%) had mild pain (Fig. 11), while 5 males(71%) and 2 females(29%) had severe pain (Fig. 12).

In the control group, 61 males had mild pain, while a smaller number of females, 39, had the same kind of pain (Fig. 13). In this group, the percentage difference of mild pain and severe pain was shown to be 91% in males and 88.6% in females (Fig. 14). On the other hand, in the experimental group, 40 males had mild pain, while only 13 females experienced the same kind of pain (Fig. 15). In this group, the percentage difference of mild pain and severe pain was shown to be 88.9% in males and 86.7% in females (Fig. 16).

The control group, which was evaluated in terms of mild pain and severe pain, did not have a statistical significance($p=0.678$). The experimental group did not have a statistical significance either($p=0.816$).

3. Evaluation of Pain Laterality

The evaluation of pain laterality, divided into bilateral pain and unilateral pain, resulted in the distribution of the control group and experimental group as shown in Table 3. In the control group, 11 males(61%) and 7 females(39%) had bilateral pain (Fig. 17), while 56 males(60%) and 37 females(40%) had unilateral pain (Fig. 18). On the other hand, in the experimental group, 15 males(71%) and 6 females(29%) had bilateral pain (Fig. 19), while 30 males(77%) and 9 females(23%) had unilateral pain (Fig. 20).

In the control group, 11 males had bilateral pain, while only 7 females had the same kind of pain (Fig. 21). In the same group, the percentage difference between bilateral pain and unilateral pain was shown to be 16.4% in males and 15.9% in females (Fig. 22). In contrast, in the experimental group, 15 males experienced bilateral pain while only 6 females had the same kind of pain (Fig. 23). In this group, the percentage difference of bilateral pain and unilateral pain was shown to be 33.3% in males and 40% in females (Fig. 24).

The control group, which was evaluated in terms

Table 3. Distribution of pain laterality by gender

(gender)	control group (%)			experimental group (%)		
	bilateral pain	unilateral pain	Total	bilateral pain	unilateral pain	Total
male	11(16.4)	56(83.6)	67(100.0)	15(33.3)	30(66.7)	45(100.0)
female	7(15.9)	37(84.1)	44(100.0)	6(40.0)	9(60.0)	15(100.0)
p	.943(NS)		(n=111)	.639(NS)		(n=60)

NS: not significant

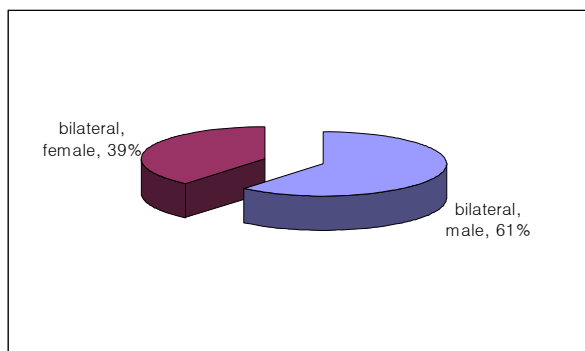


Fig. 17. This pie chart shows the ratio of bilateral pain in the temporomandibular disorders patients without tension-type headache.

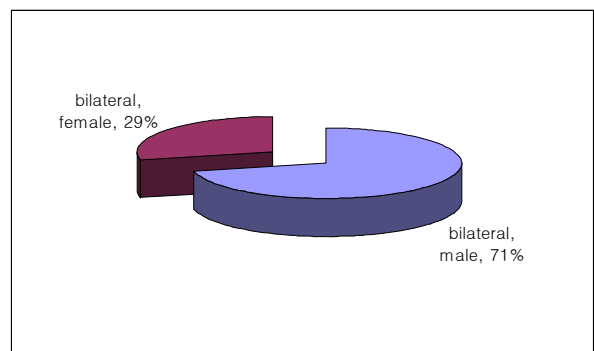


Fig. 19. This pie chart shows the ratio of bilateral pain in the temporomandibular disorders patients with tension-type headache.

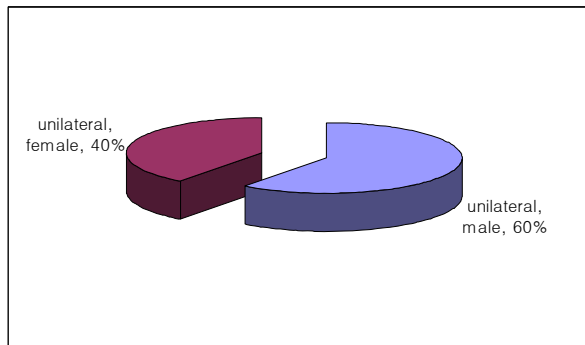


Fig. 18. This pie chart shows the ratio of unilateral pain in the temporomandibular disorders patients without tension-type headache.

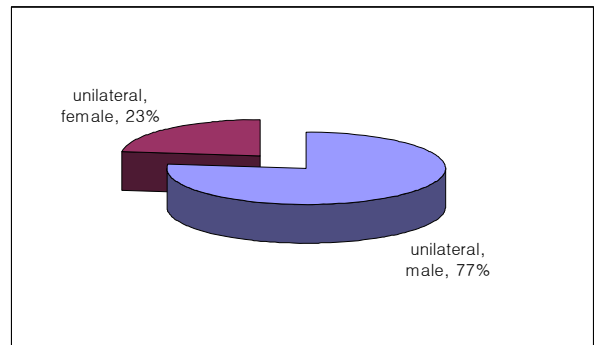


Fig. 20. This pie chart shows the ratio of unilateral pain in the temporomandibular disorders patients with tension-type headache.

of bilateral pain and unilateral pain, did not have a statistical significance($p=0.943$). The experimental group did not have a statistical significance either($p=0.639$).

4. Pain Increase by Routine Physical Activities

The evaluation of pain increase by routine physical activities resulted in the distribution of the control group and the experimental group as shown in Table

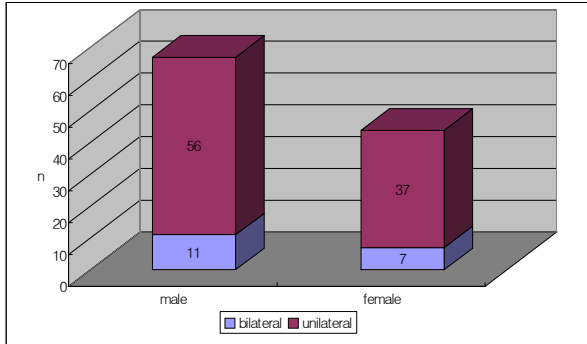


Fig. 21. This bar graph shows the distribution of bilateral pain and unilateral pain in the temporomandibular disorders patients without tension-type headache.

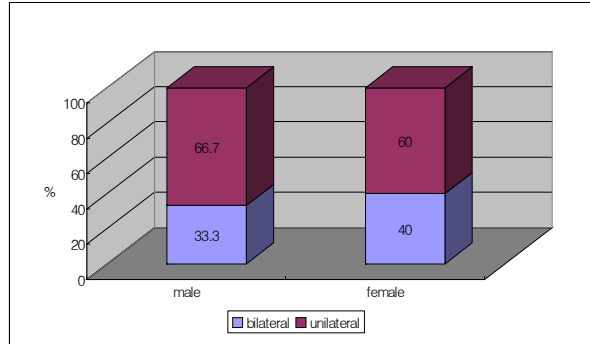


Fig. 24. This bar graph shows the ratio of bilateral pain and unilateral pain in the temporomandibular disorders patients with tension-type headache.

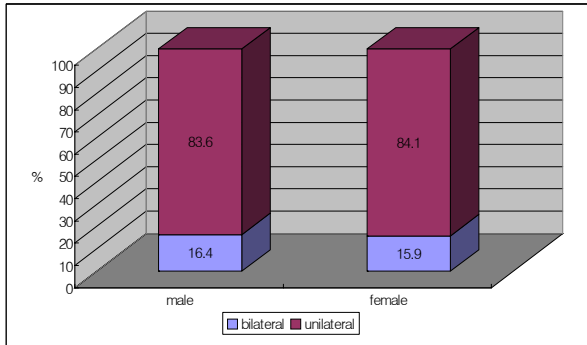


Fig. 22. This bar graph shows the ratio of bilateral pain and unilateral pain in the temporomandibular disorders patients without tension-type headache.

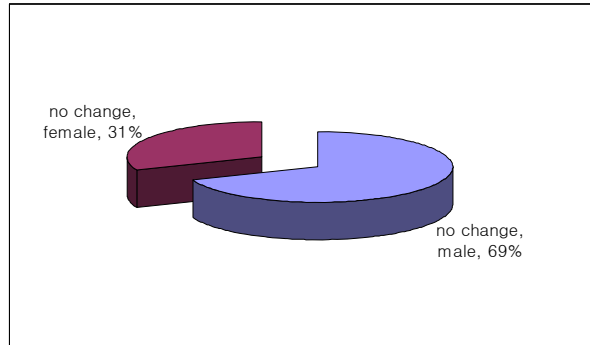


Fig. 25. This pie chart shows the ratio of no increased pain due to routine physical activity in the temporomandibular disorders patients without tension-type headache.

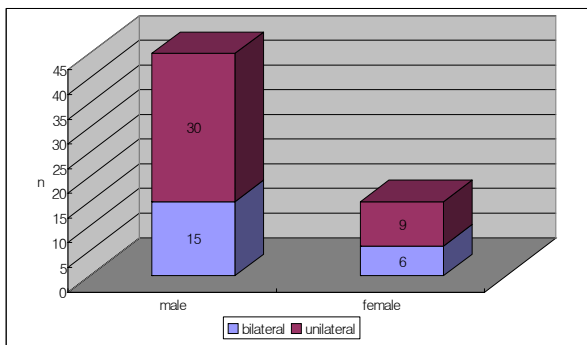


Fig. 23. This bar graph shows the distribution of bilateral pain and unilateral pain in the temporomandibular disorders patients with tension-type headache.

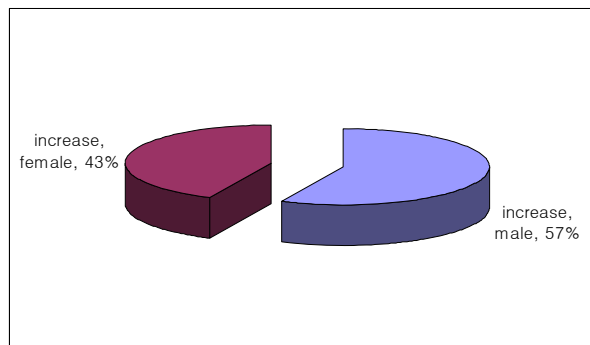


Fig. 26. This pie chart shows the ratio of increased pain due to routine physical activity in the temporomandibular disorders patients without tension-type headache.

Table 4. Distribution of pain activity by gender

(gender)	control group (%)			experimental group (%)		
	no change	increase	Total	no change	increase	Total
male	22(32.8)	45(67.2)	67(100.0)	19(42.2)	26(57.8)	45(100.0)
female	10(22.7)	34(77.3)	44(100.0)	6(40.0)	9(60.0)	15(100.0)
p	.250(NS)		(n=111)	.880(NS)		(n=60)

NS: not significant

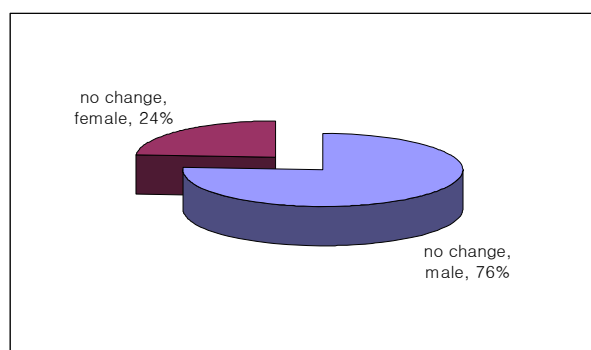


Fig. 27. This pie chart shows the ratio of no increased pain due to routine physical activity in the temporomandibular disorders patients with tension-type headache.

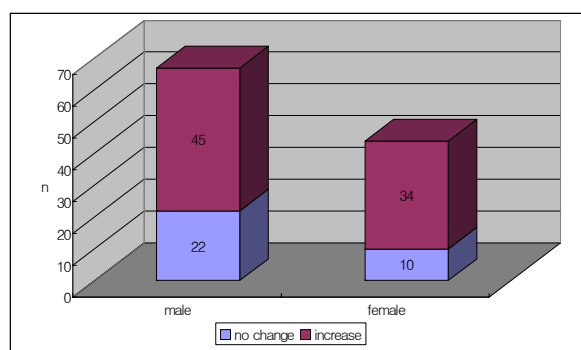


Fig. 29. This bar graph shows the distribution of no increased pain due to routine physical activity and sharp pain in the temporomandibular disorders patients without tension-type headache.

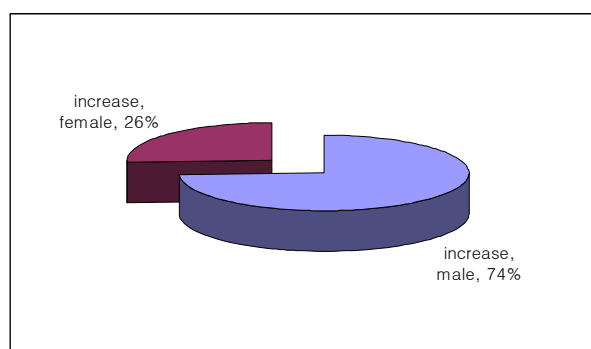


Fig. 28. This pie chart shows the ratio of increased pain due to routine physical activity in the temporomandibular disorders patients with tension-type headache.

4. In the control group, 22 males(69%) and 10 females(31%) experienced no change in pain by routine physical activities (Fig. 25), while 45 males(57%) and 34 females(43%) felt an increase in pain by daily activities (Fig. 26). On the other hand, in the experimental group, 19 males(76%) and 6 females(24%) felt no change in pain by daily activities (Fig. 27), while 26 males(74%) and 9 females(26%) experienced an increase in pain by routine activities (Fig. 28).

In the control group, 22 males and 10 females felt no change in pain by routine physical activities (Fig. 29). In the same group, the percentage difference in terms of the pain increase by routine activities was shown to be 32.8% in males and 22.7% in females (Fig. 30). Meanwhile, in the experimental group, 19

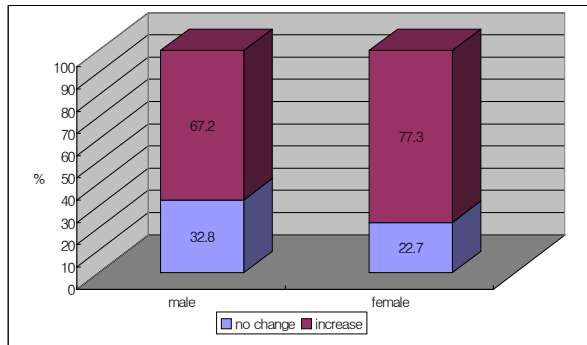


Fig. 30. This bar graph shows the ratio of increased pain due to routine physical activity and sharp pain in the temporomandibular disorders patients without tension-type headache.

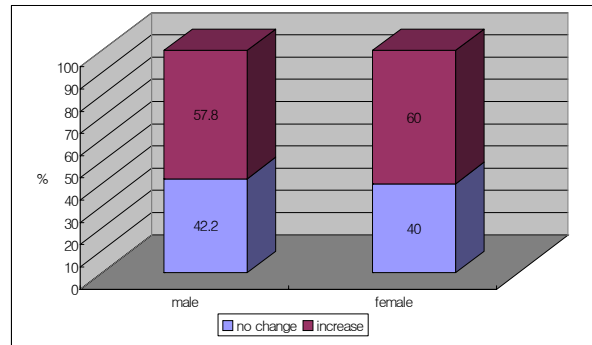


Fig. 32. This bar graph shows the ratio of increased pain due to routine physical activity and sharp pain in the temporomandibular disorders patients with tension-type headache.

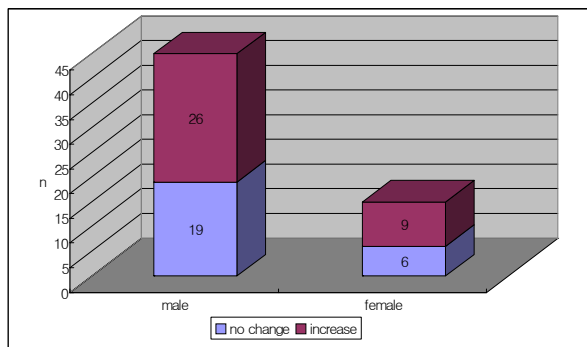


Fig. 31. This bar graph shows the distribution of no increased pain due to routine physical activity and sharp pain in the temporomandibular disorders patients with tension-type headache.

males and 6 females felt no change in pain by routine physical activities (Fig. 31). In this group, the percentage difference in terms of the pain increase by daily activities was shown to be 42.2% in males and 40% in females (Fig. 32).

The control group, which was evaluated in terms of pain increase by routine physical activities, did not have a statistical significance ($p=0.250$). The experimental group did not have a statistical significance either ($p=0.880$).

IV. DISCUSSION

Generally speaking, according to Roh et al¹⁴, men in their 50s and women in their 20s are most likely to get tension-type headaches. Okeson¹⁵ reported that the average age in which one gets the most tension-type headaches is 34.2 for men and 33.8 for women. According to the studies of Lee et al⁹, the sex ratio between men and women is 25.0% and 75.0%, respectively; it is clear that there is a more frequent occurrence of tension-type headache in women. The average age with the most tension-type headache in men and women was 31.3. That in men was 28.9 while that in women was 32.1. It was shown that the average age with the most tension-type headache in women was clearly greater than that of men. In this study, the control group consisted of 67 men (60.4%) and 44 women (39.6%); the average age was 23.8. On the other hand, the experimental group consisted of 45 men (75%) and 15 women (25%), with the average age of 23.7. A couple differences from the original study might have resulted from the differences in the time spent on the studies.

Tension-type headache is a type of headache which is dull or non-pulsative pain, where one feels like being heavily pressed or squeezed around the head or shoulders.^{16,17} Rasmussen et al reported that

78% of the episodic tension-type headache patients experienced pain of being pressed. Chun¹⁸⁾ reported that 85% of tension-type headache patients felt dull pain, and 83% of the patients felt heavy pressure. Roh et al¹⁴⁾ reported that 51.2% of tension-type headache patients felt pain of being pressed or squeezed. Additionally, Auh et al¹⁰⁾ reported that 80% of tension-type headache patients experienced dull pain. In this study, where pain quality was evaluated in terms of dull pain and sharp pain, results similar to those from previous studies were obtained. Both men and women experienced greater dull pain. In terms of the percentage difference of dull pain and sharp pain, there were 64 men(95.5%) and 37 women(84.1%) in the control group; men had a greater statistical significance ($p=0.04$). In contrast, in the experimental group, there were 37 men(82.2%) and 11 women(73.3%); although there was a greater number of men, statistical significance did not exist ($p=0.456$). Therefore, although women tend to be more sensitive among tension-type headache patients without temporomandibular disorder, this study concluded that there is no significant difference by gender among temporomandibular disorder patients with tension-type headache.

Tension-type headache is characterized by a mild or moderate pain intensity.³⁾ Rasmussen et al⁵⁾ reported that 99% of episodic tension-type headache patients show mild or moderate pain intensity. Meanwhile, Gobel et al¹⁹⁾ reported that 44% of chronic tension-type headache patients showed moderate pain intensity, and 42% of the patients showed severe pain intensity. Roh et al¹⁴⁾ reported the percentages of each pain intensity as 48.1% for mild pain, 43.8% for moderate pain, and 8.0% for severe pain. On the other hand, Auh et al¹⁰⁾ reported that 89.1% of tension-type headache patients experienced mild or moderate pain. In this study, where pain intensity was evaluated in terms of mild pain and severe pain, results similar to those from previous studies were obtained. Both men and women experienced greater mild pain. In terms of the percentage difference of mild pain and severe pain, there were 61 men(91.0%) and 39 women(88.6%) in

the control group; although men had a greater percentage than women, statistical significance did not exist ($p=0.678$). In the experimental group, there were 40 men(88.9%) and 13 women(86.7%); although men had a greater percentage than women, statistical significance did not exist ($p=0.816$). Thus, this study concluded that in terms of pain intensity, there is no significant difference by gender among temporomandibular disorder patients with or without tension-type headache.

Tension-type headaches are generally characterized by bilateral pain.³⁾ Rasmussen et al⁵⁾ reported that 90% of the patients feel bilateral pain, while Roh et al¹⁴⁾ reported that 55.6% of the patients experience such pain. However, according to the studies of Auh et al,¹⁰⁾ 63.6% of the patients feel unilateral pain. In addition, Lavados and Tenhmm²⁰⁾ reported that female patients experience bilateral pain more frequently than male patients. In this study, where pain laterality was evaluated in terms of bilateral pain and unilateral pain, results similar to those from previous studies were obtained. People of all age groups experienced greater unilateral pain. In terms of the percentage difference of bilateral pain and unilateral pain, there were 11 men(16.4%) and 7 women(15.9%) in the control group; the sex ratio did not have a statistical significance ($p=0.943$). In the experimental group, there were 15 men(33.3%) and 6 women(40.0%); there wasn't a noticeable difference between men and women($p=0.639$). Therefore, this study concluded that in terms of pain laterality, there is no significant difference by gender among temporomandibular disorder patients with or without tension-type headache.

In general, tension-type headaches are characterized by not increasing in pain through daily activities.³⁾ Rasmussen et al⁵⁾ reported that 74% of tension-type headache patients did not experience pain increase by routine physical activities, while Roh et al²²⁾ reported that 32.1% of tension-type headache patients felt pain increase due to daily activities. Among episodic tension-type headache patients, it has been reported that 69.8% of the male patients and 75.5% of the female patients felt pain

increase by routine physical activities.²⁰⁾ In addition, Auh et al¹⁰⁾ reported that the frequency of pain increase due to daily activities such as mastication and conversation was 62.8%. In spite of the conflicting and various opinions of the previous studies, this study obtained relatively consistent results from the evaluation of pain increase by daily activities. In both men and women, a general pain increase was observed. When it came to the percentage difference of the cases of pain increase and no change in pain, there were 22 men(32.8%) and 10 women(22.7%); there wasn't a statistical significance by gender($p=0.250$). In the experimental group, there were 19 men(42.2%) and 6 women(40.0%); similarly, there wasn't a statistical significance by gender($p=0.880$). Therefore, among temporomandibular disorder patients with and without tension-type headache, the pain increase by routine physical activities was not significantly different by gender.

Thus, temporomandibular disorder patients with tension-type headache must be treated differently from those without tension-type headache, considering the fact that the patients' pain quality is significantly different by gender. Additional and continuous research will be necessary on this matter.

V. CONCLUSIONS

For the thorough examination of temporomandibular disorder patients with tension-type headaches, the experimental group was made of 60 temporomandibular disorder patients that have tension-type headaches (those that correspond to the diagnosis standards of the International Headache Society), while the control group was made of 111 temporomandibular disorder patients without tension-type headaches. After the observation and statistical analysis process of pain quality, intensity, laterality and increase during routine physical activities, we came up with the following conclusions.

1. In the control group, pain quality was significantly different by gender($p=0.04$). But, in the experimental group, pain quality was not

significantly different by gender.

2. In the control group, pain intensity was not significantly different by gender. And, in the experimental group, pain intensity was not significantly different by gender.
3. In the control group, pain laterality was not significantly different by gender. And, in the experimental group, pain laterality was not significantly different by gender.
4. In the control group, pain increase by routine physical activity was not significantly different by gender. And, in the experimental group, pain increase by routine physical activity was not significantly different by gender.

Pain intensity, laterality, and increase by routine physical activities were not significantly different by gender, not only among patients with tension-type headaches but also among those without tension-type headaches. On the other hand, pain quality among temporomandibular patients without tension-type headaches was significantly different by gender, although that among patients with tension-type headaches was not significantly different by gender. Therefore, when treating temporomandibular disorder patients with tension-type headaches, one must take into consideration the fact that both men and women have similar pain quality. Additional and continuous research and studies will be necessary on this particular matter.

REFERENCES

1. Ad hoc Committee on Classification of Headache. Classification of headache. JAMA 1962;179:717-723.
2. Headache Classification Committee of the International Headache Society. Classification and diagnostic criteria for headache disorders, cranial neuralgia and facial pain. Cephalalgia 1988;8(suppl 7):1-96.
3. Headache Classification Committee of the International Headache Society. The International Classification of Headache Disorders. Cephalalgia 2004;24(suppl 1):1-152.
4. Rassmussen BK. Migraine and tension-type headache in a general population : psychosocial factors. Int J Epidemiol 1992;21:1138-1143.

5. Rassmussen BK, Jensen R, Olesen J. A population-based analysis of the diagnostic criteria of the International Headache Society. *Cephalalgia* 1991;11:129-134.
6. Philips C. Headache and personality. *J Psychosom Res* 1976;20:535-542.
7. Olesen J, Tfelt-Hansen P, Welch KMA. *The headache*. 1st ed. New York, 1993, Raven Press Ltd., pp 479-482.
8. Chun YH, Hong JP. Dental Approach of tension-type headaches. *The Journal of Korean Dental Association* 2003;41:604-609.
9. Lee HG, Hong JP, Chun YH. Orofacial Evaluation of Tension-type Headache in Dentistry. *Kor J Oral Med* 2004;29(4):395-406.
10. Auh QS, Hong JP, Chun YH. Clinical Symptom of Tension-type Headache and Temporomandibular Disorders in Pain. *Kor J Oral Med* 2004;29(4):353-365.
11. Huh KH, Kim JS, Hong JP, Chun YH. Interrelationship of Tension-type Headache and Oral Parafunction. *Kor J Oral Med* 2005;30(1):79-85.
12. Kim JS, Auh QS, Lee JY, Hong JP, Chun YH. The Effect of the Pain on the TMJ and Masticatory Muscles to Tension-type Headache. *Kor J Oral Med* 2006;31(4):326-335.
13. Oh BS, Auh QS, Hong JP, Chun YH. Pattern of Pain on Temporomandibular Joint-Muscle Area in Tension-type Headache Patients. *Kor J Oral Med* 2007;32(1):113-120.
14. Roh JK, Kim JS, Ahn YO. Epidemiology and clinical characteristics of migraine and tension-type headache in Korea. *Headache* 1998;38:356-365.
15. Okeson JP. *Orofacial pain : Guidelines for assessment, diagnosis, and management*. 3rd ed., Chicago, 1996, Quintessence., pp.127-189.
16. Gallai V, Sarchielli P, Carboni F *et al*. Applicability of the 1988 IHS criteria to headache patients under the age of 18 years attending 21 Italian headache clinics. *Headache* 1995;35:146-153.
17. Inan LE, Tulunay FC, Guvener A, Tokgoz G, Inan N. Characteristics of headache in migraine without aura and episodic tension-type headache in the Turkish population according to the IHS classification. *Cephalalgia* 1994;14:171-173.
18. Chun WX. An approach to the nature of tension headache. *Headache* 1985;25:188-189.
19. Gobel H, Petersen-Braun M, Soyka D. The epidemiology of headache in Germany : A nationwide survey of a representative sample on the basis of the headache classification of the International Headache Society. *Cephalalgia* 1994;14:97-106.
20. Lavados P, Tenhamm E. Epidemiology of tension-type headache in Santiago, Chile. *Cephalalgia* 1998;18:552-558.

국문초록

성별에 따른 측두하악장애 환자의 긴장성 두통 양상

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본 연구는 긴장성 두통이 있는 측두하악장애 환자의 성별에 따른 양상을 평가하기 위하여 시행되었다. 경희대학교 치과대학 병원 구강내과에 내원한 환자 중 긴장성 두통을 동반하거나 동반하지 않은 측두하악장애 환자를 대상으로 연구가 시행되었다. 긴장성 두통을 동반한 측두하악장애 환자 60명을 실험군, 긴장성 두통을 동반하지 않은 측두하악장애 환자 111명을 대조군으로 하여 통증의 질과 강도, 양측성 유무 그리고 일상생활에서의 증감 유무 등을 관찰하고 통계 처리하여 다음과 같은 결과를 얻었다.

1. 긴장성 두통이 없는 측두하악장애 환자에서 통증의 질은 성별 차이가 있었지만($p=0.04$), 긴장성 두통이 있는 측두하악장애 환자에서는 성별 차이가 없었다.
2. 긴장성 두통이 없는 측두하악장애 환자에서 통증의 강도는 성별 차이가 없었고, 긴장성 두통이 있는 측두하악장애 환자에서도 성별 차이가 없었다.
3. 긴장성 두통이 없는 측두하악장애 환자에서 통증의 양측성 유무는 성별 차이가 없었고, 긴장성 두통이 있는 측두하악장애 환자에서도 성별 차이는 없었다.
4. 긴장성 두통이 없는 측두하악장애 환자에서 일상생활에 따른 통증의 증가 유무는 성별 차이가 없었고, 긴장성 두통이 있는 측두하악장애 환자에서도 성별 차이가 없었다.

따라서, 긴장성 두통이 없는 측두하악장애 환자의 통증의 질에서는 성별 차이가 있었지만 긴장성 두통이 있는 경우에는 성별 차이가 없었기 때문에 긴장성 두통이 있는 환자를 진료할 때는 남성과 여성이 비슷한 통증의 질을 가지고 있음을 고려해야 한다.

주제어: 측두하악장애, 긴장성 두통, 성별