Somatic Complaints, Psychologic Distress, and Treatment Outcome in Two Groups of TMD Patients, One Previously Subjected to Whiplash Injury

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The aim of this study was to compare somatic complaints and psychologic distress in a group of whiplash patients with temporomandibular disorders (TMD) and a group of patients with TMD only, and to assess the outcome after conservative TMD treatment consisting of counseling, muscle exercises, and a stabilization splint. Each group consisted of 16 patients (12 women and 4 men) with a mean age of 42 years. The duration of the symptoms was from 1 to 3 years. In addition to a functional clinical examination and a recording of headache frequency and intensity, the patients answered three questionnaires: a Somatic Complaints Questionnaire (SCQ); the trait portion of Spielberger's State-Trait Anxiety Inventory; and the Symptom Checklist-90-Revised (SCL-90-R). The whiplash patients had higher scores than the TMD patients on the SCQ muscle score and on the following subscores of SCL-90-R: obsession, somatization, depression, and anger/hostility. The treatment outcome as assessed by the change of self-reported frequency of headache, number of tender muscles upon palpation, and change of values on a visual analogue scale for headache intensity showed that the whiplash patients obtained only a decrease in the proportion of tender muscles, while those in the TMD only group showed improvement on all treatment criteria.

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The term "whiplash" describes the injury mechanism of hyperextension-flexion of the neck.[1] Although the term does not represent a diagnosis, it is often used as such when no pathology, eg, bone fracture, cervical spine dislocation, or disc herniation, is detected.[2] Thus problems associated with whiplash are confined to the soft tissues of the spine, but patients' pain may also be related to the zygapophyseal joints, especially C2 and C3.[3,4] Symptoms reported after a whiplash incident are headache, neck pain and stiffness, and decreased range of motion of the neck. Pain may also extend to the shoulders and interscapular region.[5,6] However, these symptoms are diffuse and common, especially among women.[7]

Whiplash is essentially a benign condition from which the vast majority of patients eventually recover.[3] Symptoms and disability more than 6 months after a neck injury are defined as "late whiplash syndrome."[8]

Many patients who have experienced whiplash present signs and symptoms of temporomandibular disorders (TMD).[9] Whether these signs and symptoms are a direct result of an injury or whether they would have occurred even in the absence of injury is controversial.[2,10,11] Examples of such signs and symptoms are masticatory

muscle tenderness, limitation of mouth opening, and temporomandibular joint (TMJ) pain.[12,13] Referred pain in these patients may, however, mimic TMJ pain.[14]

Besides the observation that patients in both groups are mostly women between 30 and 50 years of age,[3,5,15] other features common to both late whiplash syndrome and TMD are headache and neck pain.[5,6,15] TMD patients cite stress as an important factor in their headaches, which, together with the clinical findings, may point in the direction of tension type headache.[16] TMD patients report the frequency of headache as hardly ever to daily[17] and their incidence of migraine seems low.[16]

Regarding whiplash patients, several terms, including cervicogenic headache, have been used. However, it may be difficult to differentiate the cervicogenic headache from migraine without aura or from tension type headache. Therefore, headache in whiplash patients may be of the tension type or any other type, or the various types of headache may coexist.[1]

Three out of four TMD patients have been shown to improve as a result of conservative methods of treatment, such as counseling, muscle exercises, and splints.[18] However, studies have shown that the treatment outcome based on patients' pain descriptions is less successful in TMD patients with high muscle palpation and headache frequency scores than in patients with low scores on these parameters.[17] Regarding whiplash patients, little is known about the effect of TMD treatment on their symptoms, and it has been suggested that their psychologic status may affect the prognosis and therefore should be considered before treatment is started.[3]

The aim of this study was *(1)* to compare psychologic distress and general somatic complaints in a group of patients suffering from "late whiplash syndrome" and in a group of TMD patients, and *(2)* to assess the effects of conservative TMD treatment on TMD symptoms, headache frequency, and headache intensity in the two groups.

Materials and Methods

The whiplash patients taking part in this study were recruited through a newspaper advertisement according to the following criteria: age greater than 18 years; the ability to speak Norwegian fluently; TMD symptoms that developed after a whiplash injury received 1 to 3 years previously, including muscle pain and a feeling of stiffness in the jaw musculature, particularly in the morning; and a report of the injury was filed with the patient's insurance company. Patients had to agree not to change medication or start other kinds of therapy during the TMD treatment period. Patients were excluded if they reported clicking only in the TMJ without pain. Whether any of the patients were involved in litigation or were waiting for compensation was not considered.

TMD patients who were referred to the clinic and who met the same inclusion criteria were matched to the whiplash patients with regard to sex and age. None of the TMD only patients had a history of whiplash injury. Both groups consisted of 12 women and 4 men. The mean age in the whiplash group was 41.6 years ranging from 25 to 60 years (SD 11.3 years). The mean age for the TMD patients was 41.8 years ranging from 27 to 60 years (SD 11.7 years).

The examination consisted of an orthopantomogram to disclose bone pathology in the jaws that might be responsible for the pain experienced. A functional clinical examination of the stomatognathic system,[19] including muscle and jaw palpation, registration of jaw sounds, and measurement of jaw movements, was also performed. The muscle tenderness was graded as one of three categories: slight, moderate, or severe tenderness as represented by a withdrawal reflex. All masticatory muscles and muscles in the neck and shoulders (26 sites) were palpated. Diagnoses were based on the Research Diagnostic Criteria for Temporomandibular Disorders (RDC/TMD).[20] The clinical diagnoses of osteoarthrosis and osteoarthritis were verified by computed tomography.

Headache frequency was graded as follows: 1 = hardly ever; 2 = once or twice a month; 3 = several times a month; 4 = several times a week; and 5 = daily.[17] In addition, patients were asked to complete three questionnaires evaluating somatic complaints and psychologic characteristics. The first, the Somatic Complaints Questionnaire (SCQ), contains 27 items to assess patients' somatic complaints,[21,22] and it includes symptoms from various diseases such as myalgia, cold/influenza, allergy, and intestinal and gastric problems. From this questionnaire, two subscales were generated: *(1)* a muscle pain index comprising pain in the neck, back, arms, and shoulders; and *(2)* a miscellaneous symptoms scale including all items other than muscle pain. The second questionnaire evaluated patients' anxiety level by means of the trait portion of Spielberger's Anxiety Inventory (STAI).[23] The third questionnaire, the Symptom Checklist-90-Revised (SCL-90-R),[24] assessed general psychologic distress.

Treatment consisted of information and counseling, muscle exercises, and splint therapy (flat occlusal splint).[25] The treatment protocol lasted 8

Table 1 Diagnoses in the Whiplash Group and in the TMD Only Group

Signs and symptoms	Whiplash	TMD only
Myofascial pain	2	4
Myofascial pain + arthralgia	8	5
Myofascial pain + arthralgia + DD with reduction	4	3
Myofascial pain + fibromyalgia	1	
Myofascial pain + osteoarthritis	1	1
Myofascial pain + DD with reduction		1
DD with reduction + osteoarthrosis		1
Myofascial pain + osteoarthrosis		1

DD = disc displacement.

Table 2 Mean Subscores From the SCL-90-R for the Two Patient Groups

Category	Group	Mean (SD)	P^*
Anger/hostility	Whiplash	.80 (.58)	0.02
	TMD	.36 (.34)	
Anxiety	Whiplash	.68 (.68)	0.54
	TMD	.53 (.64)	
Depression	Whiplash	1.28 (.59)	0.02
	TMD	.87 (.82)	
General score index	Whiplash	1.10 (.50)	0.007
	TMD	.64 (.55)	
Obsessive-compulsive	Whiplash	2.00 (.76)	< 0.001
	TMD	.84 (.70)	
Interperson sensitivity	Whiplash	.75 (.59)	0.24
	TMD	.51 (.59)	
Paranoid ideation	Whiplash	.40 (.47)	0.78
	TMD	.31 (.44)	
Phobic anxiety	Whiplash	.41 (.41)	0.16
	TMD	.23 (.41)	
Psychoticism	Whiplash	.33 (.31)	0.15
	TMD	.23 (.38)	
Somatization	Whiplash	2.10 (.81)	0.004
	TMD	1.14 (.86)	

*P values based on the Mann-Whitney U test.

weeks. The splint was examined 1 week after insertion and again 5 weeks later.

The muscle program provided exercises aimed at relaxing the shoulder and jaw muscles and making the patients aware of how their muscles were used, ie, whether they clenched their teeth or lifted their shoulders and under what circumstances they were doing these things. Patients were told to clench their teeth, localize the tension, and then relax. This technique, known as progressive relaxation, is used in the treatment of tense general body musculature.[26,27] Through this kind of training, patients will eventually be able to feel the difference between tension and relaxation without first contracting. Patients were also taught simple opening and closing movements of the mandible at a moderate speed while inhaling on the active phase of the movement and exhaling on the passive one, a so-called indirect respiration exercise. The purpose of these respiration-related exercises was to achieve a general relaxing impulse.[26]

For patients with reduced jaw mobility, active stretching exercises were taught. Since muscles originating from the occipital area are often tender and tense in patients with headache, active stretching exercises of these muscles were also provided.[26]

The following measures of treatment outcome were used: headache intensity and the subjective feeling of grievance concerning TMD were recorded by means of a visual analogue scale (VAS),[28] where 0 = no pain and 100 = worst pain imaginable, at the start of the treatment and 8 weeks later; muscle pain was recorded by palpation before and after treatment; headache frequency was recorded according to the scale previously described; and maximum jaw movement was measured with a millimeter ruler.

The assessment of possible differences between the two groups relative to age, gender, SCL-90-R, STAI, and SCQ scores before treatment, as well as maximum jaw movement and VAS scores before and after treatment, were estimated by means of nonparametric Mann-Whitney U tests. The before and after values of the self-reported headache frequency, tender muscles upon palpation, and changes of the two VAS scales were compared by the use of paired t tests after a distribution of normality of the changes was controlled for.

Results

Orthopantomograms showed no pathologic dental conditions. The frequency of different TMD diagnoses was approximately the same in the two groups (Table 1).

The SCQ-miscellaneous scores (8.0; SD = 5.7) and STAI scores (39.6; SD = 9.1) in the whiplash group were comparable to the scores of the TMD only patients, which were 7.5 (SD = 5.5) and 36.6 (SD = 9.8) ($z = -.8$; $P = 0.45$). The SCQ-muscle score was higher in the whiplash group (9.4; SD = 2.3) compared to the TMD only group (5.7; SD = 3.7) ($z = -.8$; $P = 0.002$).

Total scores for the SCL-90-R test were 73.9 (SD = 30.5) in the whiplash group and 44.9 (SD = 32.7) in the TMD only group ($z = -2.7$; $P = 0.006$). Mean subscores for the SCL-90-R questionnaire are presented in Table 2. The most obvious differences were noted for the following subscores: obsession ($z = -3.6$; $P < 0.001$), somatization ($z = -3.6$; $P = 0.003$), anger ($z = -2.4$;

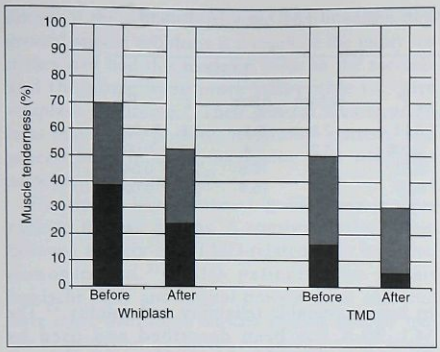

Fig 1 Muscle tenderness recorded in the whiplash group (n = 16) and in the TMD group (n = 16) before and after treatment. Light shade = no or slight tenderness; intermediate shade = moderate tenderness with a palpebral reflex; dark shade = severe tenderness represented by a withdrawal reflex.

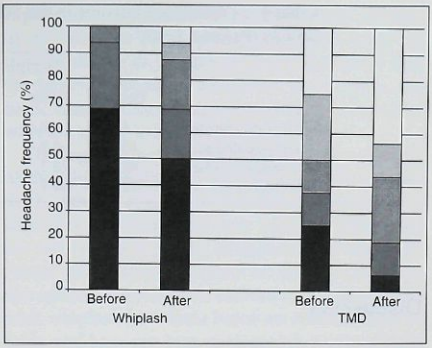

Fig 2 Self-reported headache frequency recorded in the whiplash group (n = 16) and in the TMD group (n = 16) before and after treatment. Five levels of frequency range from hardly ever (lightest shade) to daily (darkest shade), with intermediate frequencies of once or twice a month, several times a month, and several times a week.

Table 3 Self-Reported (VAS) Evaluation of Headache Intensity and TMD Symptoms Before and After Treatment

Symptom	Before	After
Headache		
Whiplash group	47	43*
TMD group	41	19
TMD symptoms		
Whiplash group	69	60*
TMD group	55	27

*$z = -2.9$; $P = 0.003$.

$P = 0.02$), depression ($z = -2.4$; $P = 0.02$), and general score index ($z = -2.6$; $P = 0.007$) (Table 2).

The number of muscles that registered severe tenderness upon palpation, as represented by a withdrawal reflex, was higher in the whiplash group than in the TMD only group both before ($z = -3.0$; $P = 0.002$) and after treatment ($z = -3.1$; $P = 0.002$) (Fig 1).

No differences were observed between the two groups regarding maximum jaw opening. Maximum jaw opening in the whiplash group was 36 mm before treatment and 39 mm afterwards; in the TMD only group it was 41 mm before and 43 mm after treatment. The change in maximum jaw opening was also similar in the two groups, ie, 3 mm and 2 mm, respectively ($z = -.5$; $P = 0.62$).

The frequency of self-reported headache was significantly higher in the whiplash group than in the TMD group both before ($z = -3.2$; $P = 0.002$) and after treatment ($z = -3.5$; $P < 0.001$) (Fig 2). Patients' evaluation of the intensity of their headache and the degree of their TMD problems as reported on a VAS scale did not differ before treatment, but differed significantly after treatment ($z = -2.9$; $P = 0.003$ and $z = -2.9$; $P = 0.003$) (Table 3).

The outcome of the treatment as assessed by the change of self-reported frequency of headache, number of tender muscles upon palpation, and change of values on a VAS scale indicated a different response pattern in the two groups. In the whiplash group, only the proportion of tender muscles decreased, while in the TMD only group, improvement was recorded using all four criteria for evaluating treatment outcome (Table 4).

Table 4 Treatment Outcome in the Whiplash (n = 16) and TMD (n = 16) Patient Groups (Paired *t* Tests)

	Whiplash				TMD			
	Before	After	t	*P*	Before	After	t	*P*
Self-reported headache	4.6	4.2	1.6	0.14	2.8	2.2	2.8	0.01
Tender palpated muscles	10.0	6.2	3.2	0.006	4.2	1.4	3.2	0.006
VAS headache intensity	47.6	43.3	0.6	0.53	41.3	18.8	2.3	0.04
VAS TMD symptoms	69.1	59.7	1.2	0.26	55.7	26.5	3.1	0.006

Discussion

Whether the whiplash patients in this study are representative of chronic whiplash patients is questionable. The age and sex distribution, however, correspond with data from other studies.[3–6] Since the patients were not referred but came to the department on their own in response to a newspaper advertisement, the motivation for help could be unique, and it might be suggested that they were patients uniquely engaged in their illness. All of the patients had sought care from several types of specialists, such as medical doctors, physical therapists, and chiropractors, and had, in addition, tried various methods of alternative medicine, all without any decrease in pain, before contacting the authors' department. This could imply that these patients are resistant to mechanically and/or biologically aimed types of therapy. Our whiplash group might therefore be looked upon as a subgroup of patients suffering from "late whiplash syndrome."

The TMD only patients were matched to the whiplash patients with regard to age and sex after the duration of the symptoms in the two groups was found to be comparable. The ages and sex of the patients in this TMD group are approximately in line with those found in other clinical investigations.[7]

The functional clinical examination comprised palpation of muscles, registration of joint sounds, and measurement of maximum jaw opening. The reliability of the investigation will always be a subject of discussion,[17] but this method is still the one most frequently used both in daily clinical work and for research purposes.[29]

Somatic complaints were assessed by means of the SCQ. The reliability and validity of this questionnaire have been discussed in several Scandinavian studies.[21,22] The anxiety level was evaluated by means of the trait portion of STAI, which has been used in various contexts and found to have acceptable reliability and validity.[30] The SCL-90-R has been described and used by Dworkin et al[31] and by List and Dworkin.[32]

The use of a visual analogue scale is considered one of the best methods available for the estimation of the intensity of pain, and it is frequently used to evaluate treatment effects.[28,33]

There was no apparent difference between the diagnoses in the two groups, and myofascial pain was the dominant symptom. Based on clinical investigations in addition to symptom reports, the diagnosis of disc displacement with reduction was made in four of the patients in both groups.

The incidence of clicking and TMJ pain in whiplash patients was found to be extremely low by Heise et al.[34] Garcia and Arrington[35] found in an MRI study, however, that 72% of 87 whiplash patients demonstrated anterior disc displacement with reduction and that 15% demonstrated disc displacement without reduction. In another study, internal derangements were seen arthrographically in 22 of 25 whiplash patients.[9] However, disc displacement has been found in asymptomatic volunteers as well,[36] which indicates that the whiplash patients could have had an asymptomatic disc displacement before the accident. On the other hand, different forms of internal derangements are found in almost 80% of nontrauma patients with signs and symptoms of TMD.[37] Since previous studies differ in their methodology and show equivocal results, it would be speculative to draw any specific conclusion regarding disc displacement in whiplash patients.

Regarding somatic complaints, the SCQ-miscellaneous scores were comparable in the two groups. Both groups presented higher scores than Vassend et al[38] reported in a TMD patient group. The reasons for this are difficult to explain. The SCQ-muscle score was higher in the whiplash group than in the TMD only group. General muscle problems are found to be higher in TMD patients than in patients seeking help for dental problems only.[39] It is not

known if the whiplash patients' high prevalence of general muscle problems is a result of the injury, or if they had had this tendency prior to the accident and therefore were more vulnerable to "late whiplash syndrome." Their general muscle problems may affect posture, respiration pattern, and general body function, increasing their whiplash-associated symptoms.[40,41]

The anxiety level measured by STAI was comparable in the two groups. A consistent relationship between anxiety and TMD-related pain has been demonstrated.[38] TMD patients who report headache daily and several times a week and who have more than three muscles graded severely tender by palpation, as did the whiplash patients in this study, had higher STAI scores than a group of TMD patients who scored lower on these parameters.[17] It was therefore within the authors' expectations to find higher values of anxiety in the whiplash group, but it does not appear that anxiety is a distinctive stamp of whiplash patients compared to TMD patients. This was also confirmed by the SCL-90-R test, where the mean subscores of anxiety were found to be comparable in the two groups.

As to the SCL-90-R scores, the most noticeable differences between the two groups were noted in the subscores for obsession, somatization, depression, and anger/hostility. Since the scores for obsession were high, it was reasonable to take a closer look at the different questions in this category and to identify, if possible, for which questions a difference was noticeable. Half of the whiplash patients had top scores on the question "concentration problems," and four had top scores on the following three questions: "have to control what you do one or several times," "get empty in the head," and "feel it difficult to get things done." None of the TMD patients had top scores on these questions. Radanov et al[42] have shown that patients with troublesome cervical sprain injuries have difficulties with concentration and memory that relate to the severity of the injury. These symptoms may also be a result of the consumption of analgesic drugs, but this possibility has not been clarified.[43] These scores may indicate an illness effect, ie, worry, ruminations, disturbing thoughts about illness symptoms, and change of lifestyle, rather than a distinct psychopathologic symptom.

In the SCL-90-R, the term "somatization" is used. This may be to assign an etiology to the symptoms, and the term "nonspecific physical symptoms" would be more appropriate.[20] A high frequency of such symptoms experienced and reported by the whiplash patients may be explained by an increased psychobiologic sensitivity to minor or even normal changes in body signals, probably as a result of stress associated with the injury.[44] Negative affectivity (eg, anxiety, distress, tension) have been found to be associated with subjective health complaints.[45]

The higher scores in the anger/hostility category of the whiplash patients may be a result of the way the healthcare system has handled these patients or how they feel they have been handled. Often they do not receive a proper diagnosis, and the treatments given may therefore be accidental. Most therapeutic interventions currently used in patients with whiplash have been based on either fashion or faith, and have not been evaluated in a scientifically rigorous manner.[3,46] The anger/hostility trend in the whiplash patients may also be explained by the way the pain has occurred. The TMD patients' pain most often developed gradually, while the whiplash patients' pain occurred suddenly after an accident, for which they often feel they were not responsible. Therefore, these patients may feel that their pain is unjustified.

Chronic pain and depression, as well as reports of nonspecific physical symptoms, have been found to be strongly correlated.[47] Therefore, the findings in these categories of the SCL-90-R were expected for both groups, and it was also expected that whiplash patients would rate higher, because clinical experience has shown that these patients report constant and severe pain.

The personality distress and nonspecific physical symptoms registered by the whiplash patients may be the result of their "painful life" after the trauma. The pain literature has demonstrated that after 6 months of chronic pain, previously "normal" individuals are at an increased risk of developing negative personality changes, including depression.[6,48] In many cases, however, such changes have been found to be reversible after a successful outcome of the treatment for the pain.[49] On the other hand, the negative personality factors may have been present before the accident and may have influenced the recovery. In the literature, opinion varies as to the role of psychosocial factors on the course of recovery from whiplash.[1,6] Results of a study by Radanov et al[50] indicate that recovery is related to the severity of the injury.

All of the SCL-90-R scores from both patient groups were considerably higher than the Norwegian population mean.[51] According to the U.S. classification of depression and somatization, the whiplash patients were considered severe in both categories. The TMD only patients had severe levels of somatization and moderate levels of depression.[20]

The SCL-90-R has been used in chronic pain patients, but according to Dworkin,[52] its overall usefulness has not been "unequivocally" established. Dworkin further states that using the entire SCL-90-R may create problems and that a greater number of pain conditions elevates the somatization and depression scores.[31] Bernstein et al[53] regard it as a useful tool in the screening of chronic pain patients, both physically and psychologically.

The functional examination revealed that the number of muscles that showed severe tenderness upon palpation as represented by a withdrawal reflex was higher in the whiplash group both before and after treatment. Muscle pain related to both masticatory and body muscles seems to be characteristic in whiplash patients.

The frequency of headache, and especially of daily reported headache and its intensity, was, as expected, higher in the whiplash group than in the TMD only patients, since headache is one of the main complaints of whiplash patients. This study did not seek to diagnose which types of headache the different patients suffered from. It was assumed that tension type headache was rather common because muscle pain was registered in the temporal, sternocleidomastoid, and suboccipital muscles.[14,54] It has been claimed, however, that about 27% of headaches after whiplash can be traced to the C2 and C3 zygapophyseal joints.[4] If this kind of headache were the dominant one, it might explain why our treatment, in spite of a decrease in painful muscles, did not have a definite positive effect on headache frequency and intensity in the whiplash patients. Exercises and splints are expected to have a positive influence on headache[55,56] associated with TMD symptoms, as recorded in the TMD only patients. However, the effect may also be the result of the fluctuating and self-limiting character of tension type headache. There was a tendency towards a decrease (20%) of daily reported headache in the whiplash patients, in addition to a decrease in the proportion of tender muscles. This may indicate that the conservative type of TMD treatment given in our study may be a supplemental treatment for whiplash patients.

The number of whiplash patients in this study were few; therefore, the study must be looked upon as a pilot study, and further investigations are necessary. The whiplash patients demonstrated that they suffered both physically and emotionally. This should be taken into consideration when further treatment is planned. Their general muscle problems indicate that treatment focused at the entire body musculature, and as well as a cognitive, behavioral approach, should be considered. Based on the present study, it appears that conservative TMD treatment does not have a clear positive influence on whiplash patients' headache frequency and intensity.

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Resumen

Quejas somáticas, angustia psicológica, y resultados de tratamiento en dos grupos de pacientes con desórdenes temporomandibulares, uno de los cuales había sufrido lesiones por golpe con rebote

El propósito de este estudio fue el de comparar las quejas somáticas y la angustia psicológica de un grupo de pacientes que habían sufrido golpes con rebote y desórdenes temporomandibulares (DTM), y un grupo de pacientes con DTM sólo. El estudio también evaluó el resultado después de un tratamiento conservador para los DTM, el cual consistió de consultas de asesoría, ejercicios musculares, y una férula estabilizadora. Cada grupo consistió de 16 pacientes (12 mujeres y 4 hombres) con una edad media de 42 años. La duración de los síntomas fue de 1 a 3 años. Además de de un examen clínico funcional y una grabación de la frecuencia e intensidad de las cefaleas, los pacientes contestaron tres cuestionarios: un Cuestionario de Quejas Somáticas (CQS); la sección de rasgos perteneciente al Inventario de Ansiedad de Spielberger; y la Lista de Verificación de Síntomas Revisada-90 (LVSR-90). Los pacientes que habían sufrido golpe con rebote tuvieron puntuaciones más altas en comparación con los pacientes con DTM en cuanto a la puntuación del CQS muscular y en las siguientes subpuntuaciones del LVSR-90: obsesión, somatización, depresión, y enfado/hostilidad. Al evaluar los resultados del tratamiento basados en el cambio de la frecuencia auto-reportada de las cefaleas, en el número de músculos sensibles a la palpación, y en el cambio de los valores sobre una escala análoga visual en relación a la intensidad de la cefalea; los resultados demostraron que los pacientes que habían sufrido golpes con rebote solo obtuvieron una disminución en la proporción de los músculos sensibles, mientras que aquellos en el grupo con DTM experimentaron una mejoría en todos los criterios del tratamiento.

Zusammenfassung

Somatische Beschwerden, psychologischer Distress und Behandlungsergebnis in zwei Gruppen von TMD Patienten, die eine mit früherem Schleudertrauma

Das Ziel dieser Studie war es, die somatischen Beschwerden und den psychologischen Distress einer Gruppe von Schleudertrauma-Patienten mit temporomandibulären Erkrankungen (TMD) mit einer Gruppe von Patienten mit einer blossen TMD zu vergeichen, und das Ergebnis nach konservativer TMD-Behandlung, bestehend aus Beratung, Muskelübungen und einer Stabilisierungsschiene, zu beurteilen. Jede Gruppe bestand aus 16 Patienten (12 Frauen und 4 Männer) mit einem Durchschnittsalter von 42 Jahren. Die Dauer der Symptome betrug 1 bis 3 Jahre. Zusätzlich zu einer funktionellen klinischen Untersuchung und einer Aufzeichnung der Intensität und Frequenz der Kopfschmerzen beantworteten die Patienten drei Fragebögen: ein Somatic Complaints-Fragebogen (SCQ); ein Teil des Spielberger's State-Trait Anxiety Inventory; sowie die Symptom Checklist-90-Revised (SCL-90-R). Die Patienten mit Schleudertrauma zeigten höhere Werte als die TMD-Patienten beim SCQ Muskelwert und bei den folgenden Teilwerten des SCL-90-R: Zwangsvorstellungen, Somatisierung, Depression und Zorn/Feindseligkeit. Das Behandlungsergebnis, beurteilt durch die Veränderung der selbstangegebenen Kopfschmerzfrequenz, die Anzahl palpationsempfindlicher Muskeln und die Veränderung der Werte der visuellen Analogskala für die Kopfschmerzintensität, zeigte, dass die Patienten mit Schleudertrauma nur eine Abnahme im Anteil der empfindlichen Muskeln erreichten, während diejenigen in der nur TMP-Gruppe für alle Behandlungskriterien ein Verbesserung zeigten.