

Ear acupuncture associated to home self-care in the treatment of chronic temporomandibular disorders in women. Case reports

Acupuntura auricular associada aos autocuidados caseiros no tratamento das disfunções temporomandibulares crônicas em mulheres. Relato de casos

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ABSTRACT

BACKGROUND AND OBJECTIVES: This study aimed at describing, in a case series, the effect of ear acupuncture associated or not to education and home self-care techniques in the treatment of chronic temporomandibular disorders in women.

CASE REPORTS: Nine patients with chronic painful temporomandibular disorder, aged between 22 and 45 years of age (mean of 32.11 years) were evaluated with the clinical chart of temporomandibular disorders and orofacial pain of the Occlusion II discipline, Universidade de Araraquara, with the Research Diagnostic Criteria for Temporomandibular Disorders and by a pain diary with visual analog scales delivered once a week in reference (first week) and after each treatment session (ear acupuncture and/or counseling). During the three weeks of treatment, patients were oriented to control temporomandibular disorders, being that six patients, in addition to self-care, have also received ear acupuncture in recommended points to treat temporomandibular disorders and associated symptoms (protocol: Shen-men, neurovegetative system, kidneys, temporomandibular disorders and anxiety triad). Ear acupuncture associated to education and home self-care has shown the best results in symptoms remission/improvement after 3 weeks of treatment as compared to the group receiving just self-care orientations.

CONCLUSION: Ear acupuncture associated to education and home self-care techniques has shown better results to control pain of patients with temporomandibular disorder.

Keywords: Acupuncture, Ear, Facial pain, Temporomandibular joint disorders, Therapeutics.

RESUMO

JUSTIFICATIVA E OBJETIVOS: O objetivo desse estudo foi descrever, em uma série de casos, o efeito da acupuntura auricular associada ou não às técnicas de educação e autocuidados caseiros, no tratamento das disfunções temporomandibulares crônicas em mulheres.

RELATO DOS CASOS: Nove pacientes com disfunção temporomandibular crônica dolorosa, com idade entre 22 e 45 anos (média de 32,11 anos) foram avaliadas por meio da ficha clínica de disfunções temporomandibulares e dor orofacial da Disciplina de Oclusão II do Centro Universitário de Araraquara, pelo *Research Diagnostic Criteria for Temporomandibular Disorders* e por um diário de dor com escalas analógicas visuais, entregues semanalmente na referência (primeira semana) e após cada sessão de tratamento (acupuntura auricular e/ou aconselhamento). Durante as três semanas de tratamento, as pacientes receberam instruções para controle das disfunções temporomandibulares, sendo que seis pacientes receberam, além dos autocuidados, acupuntura auricular nos pontos recomendados para o tratamento das disfunções temporomandibulares e sintomas associados (protocolo: Shen-men, sistema neurovegetativo, rim, disfunções temporomandibulares e tríade da ansiedade). A acupuntura auricular associada à educação e autocuidados caseiros apresentou os melhores resultados na remissão/diminuição dos sintomas após 3 semanas de tratamento quando comparada ao grupo que recebeu apenas as instruções de autocuidados.

CONCLUSÃO: A acupuntura auricular associada à educação e às técnicas de autocuidados caseiros demonstrou melhores resultados no controle da dor dos pacientes com disfunção temporomandibular.

Descritores: Acupuntura auricular, Dor facial, Terapêutica, Transtornos da articulação temporomandibular.

INTRODUCTION

According to the American Academy of Orofacial Pain (AAOP)¹, temporomandibular disorder (TMD) is defined as a set of clinical signs involving masticatory muscles, temporomandibular joint (TMJ) and associated structures. Most frequently reported symptoms are: muscle fatigue, facial pain, TMD and/or masticatory muscles pain, headache and/or earache and jaw movements limitation and/or shifts².

Epidemiological studies have shown that approximately 40

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to 70% of the population had already at least one TMD sign³. Since its etiology is multifactorial⁴, several treatment modalities are proposed and successfully used. However, most recommended therapies are reversible and noninvasive, which should be the first choice to treat TMD aiming at controlling pain and recovering stomatognathic system function^{2,3}.

Most conservative therapeutic modality and one of the most important among those indicated to control TMD is based on patients' education, responsibility and self-development, which includes self-care, muscle exercises and minimization of contributing factors⁵⁻⁷. Educating patients about the problem to develop thermotherapy, self-massage, stretching, stabilization, coordination and jaw mobilization is certainly a key for effective treatment.

Acupuncture is a conservative therapeutic modality which has been successfully used in TMD patients⁹⁻¹³. Acupuncture reestablishes body balance, relieving pain and improving inflammatory processes⁷. Ear acupuncture is a systemic acupuncture dimension based on specific needles, seeds and/or crystals insertion on reflex points located in the ear. This technique has the advantages of presenting few adverse effects, broad application and simple manipulation¹⁴. Since ear acupuncture has been used to control pain in different acute and chronic conditions¹⁵, it is important to study its clinical relevance also in TMD.

In light of the actuality and relevance of the subject, we have considered pertinent this case study aiming at evaluating and describing the effects of ear acupuncture, associated or not to education and home self-care techniques, in orofacial pain frequency and intensity in nine women with chronic TMD.

CASE REPORTS

Cases reported in this study are part of a larger study, approved by the Human Research Ethics Committee, Universidade de Araraquara (UNIARA), (CAAE – 44886715.9.0000.5383). Sample was made up of six patients of the TMD and orofacial clinic, Discipline of Occlusion II, UNIARA, and by three students of the referred course. Participants were recruited by means of research disclosure and were then evaluated and treated during the second semester of 2015 by trained students.

All participants were submitted to clinical evaluation according to the following tools and protocols:

- 1) Clinical record, developed by the Discipline of Occlusion II Clinic, to detail primary patients' complaint, TMD pain characteristics (site, intensity, quality, duration, worsening and improving factors), presence of other painful conditions (such as headaches and body pain), as well as medical history;
- 2) AAOP¹ criteria were used for differential diagnosis with other clinical conditions which might mimic TMD;
- 3) Research Diagnostic Criteria for Temporomandibular Disorders (RDC/TMD)¹⁶ in its Portuguese version, was used to confirm TMD diagnosis obtained by previous clinical evaluation;
- 4) Pain diary and visual analog scale (VAS). Patients received a

pain diary to record every day when there was pain, recording also pain intensity in that day by means of VAS.

After clinical record filling and confirmed the presence of chronic TMD (more than six months), RDC/TMD questionnaire was filled by patients, being that an investigator was present to help in case of doubt. Axis II exam protocol was applied by one investigator, graduating dentistry student and trained for its application.

During one week, patients were oriented to fill a pain diary to identify frequency and intensity of pain crises before treatment (reference). Then, patients were referred to treatment, that is, education and counseling, associated or not to ear acupuncture.

All patients received the same self-care orientation by means of an educative video and a leaflet especially developed for this purpose. In addition, six patients have received ear acupuncture in one ear by means of mustard seeds application in recommended points to treat TMD and associated symptoms (Shen-men points, neurovegetative system (NVS), TMD, anxiety triad and kidney), changing application side at each session. Two professors experienced in the area were responsible for supervising determination and application of seeds on patients.

At every session, a new diary was delivered to patients to be filled during the week in course, recording day(s) of pain and its(their) respective intensity(ies) and other relevant information. If needed, the educative leaflet was redistributed. All patients were treated by means of single weekly sessions along 3 weeks. During sessions, patients would again watch the video and were clarified about questions on past instructions (patients 1 to 9), being that in the pertinent group, patients had their seeds replaced (patients 1 to 6).

The following inclusion criteria were considered for this study:

Presence of chronic painful TMD – pain lasting for more than six months (IASP); women gender aged between 18 and 50 years; chronic pain grade II or III, according to RDC/TMD axis II.

Additionally, the following exclusion criteria were adopted:

Patients under central action drugs for pain, such as antidepressants, anxiolytics, anticonvulsants, muscle relaxants; presence of tooth pain, neuropathic pain and intraoral injuries; patients with cognitive function changes and communication ability impairment; degenerative, inflammatory, infectious diseases, cancer or systemic neuromuscular diseases; in orthodontic treatment; patients under physiotherapy treatment or other treatment for orofacial pain.

All patients selected for treatment were invited to participate in the study, receiving all relevant oral and written information. Only after reading, understanding and signing the Free and Informed Consent Term (FICT) treatment was started and considered a pilot study.

With regard to RDC/TMD diagnosis, described in table 1, all patients had group I diagnosis (myofascial pain), five of them (1, 2, 3, 5 and 8) had myofascial pain with mouth opening limitation. With regard to group II, four patients had disc

displacement with reduction, being that in two patients dysfunction was unilateral (3 and 7) and on the others bilateral (5 and 9).

As to group III (other joint conditions), most patients had bilateral TMJ arthralgia (2, 3, 5, 6 and 9). So, one may say that most patients had mixed chronic painful TMD, that is, pain of muscle and joint origin, and just two had painful TMD of exclusively muscular origin (1 and 4).

With regard to the psychological profile of patients, it was observed that, according to inclusion criteria, all patients had chronic pain grade II (low incapacity and high pain intensity). However, with regard to depression, four patients had severe symptoms (3, 4, 6 and 8), while two had moderate symptoms and three had normal scores. With regard to unspecific physical symptoms, such as headache, body pain, weakness, dizziness, guilt feelings, among others, six patients (2, 4, 6, 7, 8 and 9) had severe levels, two had moderate and just one had normal level. Relative limitations regarding jaw function have varied a lot among patients, from 0 to 100% (Table 1). Figure 1 shows the number of days in which patients who received acupuncture plus counseling had pain during follow up weeks. With regard to the number of days with pain reported in the reference, it was observed that three patients have decreased the number of days with pain after the first acupuncture session (1, 3 and 4). Two of them had marked decrease in the number of days with pain (1: 100%; 4: 83%). Three patients have maintained the same frequency of days with pain (2, 5 and 6) and in one pain has worsened after the third session (3:66%).

Figure 2 shows the evolution of patients just receiving self-care and it is observed that none of them had pain improvement after the first orientation session. Two patients have maintained virtually the same pattern of days with pain as compared to reference (8 and 9), one of them with mild in-

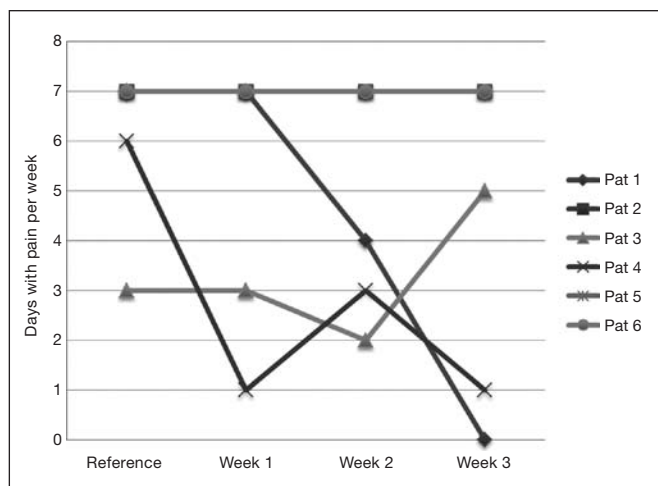


Figure 1. Days of pain along 4 weeks (acupuncture + counseling patients)

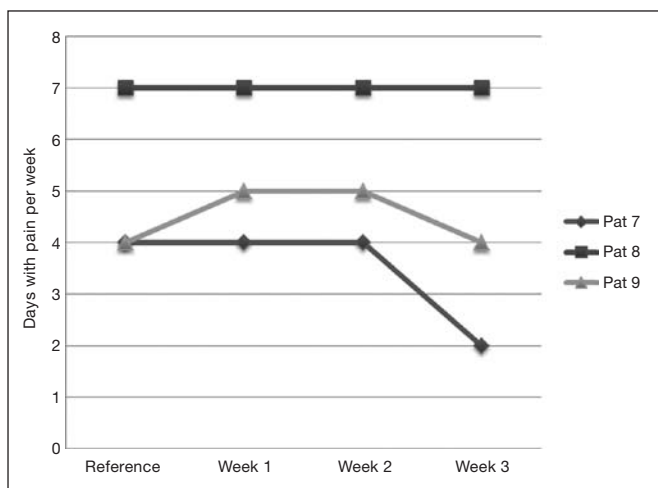


Figure 2. Days of pain along four weeks (counseling patients)

Table 1. Mean pain intensity by visual analog scale along four weeks (counseling patients)

Age	Group I	Group II	Group III	Chronic pain grading	Depression	Unspecific physical symptoms	Jaw function limitation (%)
22	Myofascial pain with limitation	No diagnosis	No diagnosis	II	Normal	Normal	0
24	Myofascial pain with limitation	No diagnosis	R and L arthralgia	II	Moderate	Severe	33
36	Myofascial pain with limitation	Disc displacement with L reduction	R and L arthralgia	II	Severe	Moderate	41
22	Myofascial pain	No diagnosis	No diagnosis	II	Severe	Severe	16
25	Myofascial pain with limitation	Disc displacement with L and R reduction	R and L arthralgia	II	Normal	Moderate	41
45	Myofascial pain	No diagnosis	R and L arthralgia	II	Severe	Severe	100
28	Myofascial pain	Disc displacement with R reduction	R arthralgia	II	Severe	Severe	50
50	Myofascial pain with limitation	No diagnosis	L arthralgia	II	Severe	Severe	50
37	Myofascial pain	Disc displacement with L and R reduction	R and L arthralgia	II	Moderate	Severe	50

R = right; L = left.

crease in days of pain (9: 25% worsening). Just one patient had decreased days of pain with regard to reference, observed only after the third treatment week (7:50%).

Figure 3 shows mean pain intensity of patients receiving acupuncture plus counseling, according to VAS in the referred period. Immediately after the first session, three patients had pain intensity decrease (1, 2 and 6). Three patients had decreased pain intensity as compared to reference at treatment completion (1, 100%; 3, 27% e 6, 37%); one had virtually the same intensity (2) and in two it has increased (4: 28% e 5: 20%). Figure 4 shows pain intensity of patients receiving counseling alone.

All patients had pain intensity worsening after the first session (7, 8 and 9). There was pain intensity decrease as compared to reference in two patients (7: 59% improvement, 9: 23%). One patient had pain intensity increase of almost 100% during the period (8).

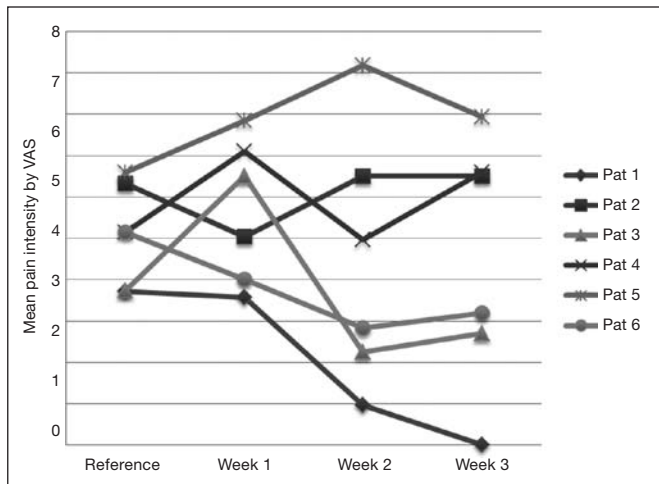


Figure 3. Mean pain intensity by visual analog scale along five weeks (acupuncture + counseling patients)

VAS = visual analog scale

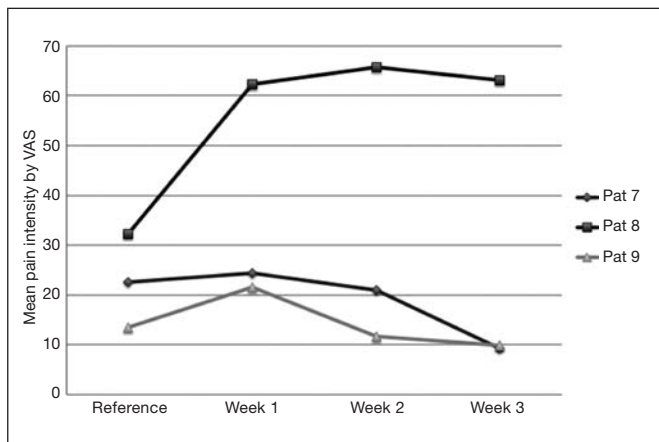


Figure 4. Mean pain intensity by visual analog scale along five weeks (counseling patients)

VAS = visual analog scale

DISCUSSION

Pain is one of the most common reasons for looking for health professionals and for the use of drugs¹⁵. Among these pains, there is TMD pain³. For Traditional Chinese Medicine, ear has points referring to the whole human body and this treatment has gained space in the Western world in recent years for being considered simple and effective to control pain and emotional factors, among other problems¹⁴. Recent results suggest the efficacy of ear acupuncture to improve both chronic orofacial pain and quality of life¹⁰.

In patients 1 to 6, ear acupuncture was additional to self-care orientation, by means of mustard seeds applied to predetermined points on the ear, which represented systemic organs, pain sites and/or functional problems¹⁴, along four weekly sessions.

Treatment protocol, based on available literature, consisted in the following points: 1- Divine gate (Shen-men), by the Chinese internal organs board, for its relaxing, analgesic, anti-inflammatory and sedative effects; 2- Kidney (Shen), by Chinese internal organs board, which maintains vital energy, filters blood and eliminates body toxins, in addition to neurasthenia; 3 - Neurovegetative or sympathetic system which, according to Chinese nervous system board, balances all involuntary body functions, such as hunger, sleepiness, digestion, heart beats; 4- TMD point, by French and Chinese boards (convergence zone of TMD, jaw, mandible, teeth, tongue and palate points) and 5- Anxiety triad, by French functional problems board, made up of happiness, metabolic and joy regulation¹³.

Although both groups had patients with constant pain and worsening levels, some patients had significant improvement, especially with regard to pain intensity decrease in the short term. Among patients receiving self-care associated to acupuncture, percentage of decreased days of pain during the week and of pain intensities were descriptively higher. With acupuncture, body response seems to be faster, decreasing symptoms intensity, very often eliminating them.

Case reports available in the literature point to significant TMD improvement in patients treated with ear acupuncture in the points used in this study⁸⁻¹⁰, however they suggest additional points for this treatment, such as, neurasthenia/nervousness point, heart and lungs point, which act to control emotional aspects such as anxiety, nervousness, joy and sadness, and others such as liver, gallbladder and large intestine, also related to emotional aspects such as anger, decision-making/courage and sadness^{10,11}. These points were not selected for our study but could have complemented the approach and increased treatment efficacy.

Ear acupuncture is a sensible technique, acting by means of different systemic acupuncture mechanisms¹⁵. According to neurophysiology, afferent impulses of ear points project toward corresponding or adjacent neurons in the central nervous system. When there are changes in organs or body regions, there is a connection between afferent ear impulse and central nervous system neuron(s), generating specific responses¹⁴. When these ear points are stimulated, patients feel pain

by contrairritation, inhibitory effect on excitation pathologic focus, until the disease circle is blocked, relieved or cured. In addition, ear acupuncture acts regulating endocrine and immune systems by neuro-humoral transmission, strengthening disease fighting ability¹⁴.

To promote the leveling of patients with regard to pain sensation and perception, only patients with chronic orofacial pain were included, that is, for more than six months. When TMD becomes chronic, symptoms such as headaches, depression, chronic fatigue, sleep disorders, decreased productivity, inadequacy sensation, low self-esteem, isolation and mood variations override other symptoms¹⁷, which probably would require more points than those used in this study, in addition to the association of several complementary therapeutic modalities⁷. Certainly, this might have contributed for the improvement observed in patients receiving simultaneous therapies. It is also known that chronic TMDs demand longer treatment time for being more complex pains and the proposed treatment period was short. Studies have reported improved TMD symptoms with home therapy and self-care after six weeks⁷. In turn, for therapies with ear acupuncture, initial treatment cycles vary from five to ten applications¹⁴. Notwithstanding the short period, promising improvements were observed. An important problem is that this study has used Western diagnosis¹³, based on the measurement of TMD signs and symptoms, objectively collected by means of clinical records and RDC/TMD. Notwithstanding standardization aiming at selecting individuals with same pain grading (II and III), there were variations in the sample with regard to structures affected by the disorder and other parameters such as depression, unspecific physical symptoms and jaw function limitation, which makes difficult the comparison of findings among patients and among treatment groups. One should also stress that treatment was based on the same protocol for the whole sample. Acupuncture is certainly an Eastern technique aiming at tailoring treatment based on a holistic view of particular systemic needs of each patient. In our study, which will act as a basis to determine the protocol of a clinical trial, there was the need to standardize the methodology, so, treatment tailoring, such as in the study by Elder et al.¹², was not feasible as in most clinical trials.

CONCLUSION

In light of the above, one may stress that ear acupuncture associated to home self-care has shown better results to control TMD. However, this technique needs further evidences, based on clinical trials with better defined and designed standards, in the long term.

REFERENCES

1. American Academy of Orofacial Pain. General assessment of the orofacial pain patient. In: de Leeuw R, Klasser GD, editores. Orofacial pain - guidelines for assessment, diagnosis and management. 5th ed. Chicago: Quintessence; 2013. 25-46p.
2. Peck CC, Goulet JP, Lobbezoo F, Schiffman EL, Alstergren P, Anderson GC, et al. Expanding the taxonomy of the diagnostic criteria for temporomandibular disorders. *J Oral Rehabil.* 2014;41(1):2-23.
3. Carrara SV, Conti PC, Barbosa JS. Termo do primeiro Consenso em Disfunção Temporomandibular e Dor Orofacial. *Dental Press J Orthod.* 2012;15(3):114-20.
4. Maixner W, Diatchenko L, Dubner R, Fillingim RB, Greenspan JD, Knott C, et al. Orofacial pain prospective evaluation and risk assessment study--the OPFERA study. *J Pain.* 2011;12(11 Suppl):T4-11.e1-2.
5. Friction J. Myogenous temporomandibular disorders: diagnostic and management considerations. *Dent Clin North Am.* 2007;51(1):61-83.
6. Campi LB, Camparis CM, Jordani PC, Gonçalves DA. Influência de abordagens biopsicossociais e autocuidados no controle das disfunções temporomandibulares crônicas. *Rev Dor.* 2013;14(3):219-22.
7. Wieckiewicz M, Boening K, Wiland P, Shiao YY, Paradowska-Stolarz A. Reported concepts for the treatment modalities and pain management of temporomandibular disorders. *J Headache Pain.* 2015;16:106.
8. Michelotti A, de Wijer A, Steenks M, Farella M. Home-exercise regimes for the management of non-specific temporomandibular disorders. *J Oral Rehabil.* 2005;32(11):779-85.
9. Borin GC, Corrêa EC, Silva AM, Milanesi JM. Acupuntura como recurso terapêutico na dor e na gravidade da desordem temporomandibular. *Fisioter Pesqui.* 2011;18(3):217-22.
10. Florian MR, Meirelles MP, Sousa ML. Disfunção temporomandibular e acupuntura: uma terapia integrativa e complementar. *Odontol Clin-Cient.* 2011;10(2):189-92.
11. Rui A, Meirelles MP, Sousa ML. Relato de caso sobre o uso da acupuntura no tratamento da dor orofacial. *Arq Ciênc Saúde UNIPAR.* 2011;15(3):287-90.
12. Elder C, Ritenbaugh C, Aickin M, Hammerschlag R, Dworkin S, Mist S, et al. Reductions in pain medication use associated with traditional Chinese medicine for chronic pain. *Perm J.* 2012;16(3):18-23.
13. Porporatti AL, Costa YM, Stuginsky-Barbosa J, Bonjardim LR, Conti PC. Acupuncture therapeutic protocols for the management of temporomandibular disorders. *Rev Dor.* 2015;16(1):53-9.
14. Shi-ying J, Wan-cheng J. Manual prático de auriculopuntura. São Paulo: Rocca. 2012. 93 p.
15. Asher GN, Jonas DE, Coeytaux RR, Reilly AC, Loh YL, Motsinger-Reif AA, et al. Auriculotherapy for pain management: a systematic review and meta-analysis of randomized controlled trials. *J Altern Complement Med.* 2010;16(10):1097-108.
16. Dworkin SF, LeResche L. Research diagnostic criteria for temporomandibular disorders: review, criteria, examinations and specifications, critique. *J Craniomandib Disord.* 1992;6(4):301-55.
17. Auvenshine RC. Temporomandibular disorders: associated features. *Dent Clin North Am.* 2007;51(1):105-27.