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ARTICLE

The Orofacial Pain Clinic Questionnaire (EDOF-HC) in the evaluation and diagnosis of orofacial pain

Questionário da Equipe de Dor Orofacial (EDOF-HC) na avaliação e diagnóstico da dor orofacial

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ABSTRACT

Background: Diagnostic tools are necessary for the anamnesis and examination of orofacial pain, in order to fulfill diagnostic criteria and to screen potential causes of pain. **Objective:** To evaluate the Orofacial Pain Clinic Questionnaire (EDOF-HC) in the assessment and diagnosis of orofacial pain. **Methods:** Overall, 142 patients were evaluated and classified according to the criteria of the International Headache Society and International Association for the Study of Pain. All of them were evaluated with the EDOF-HC questionnaire, which consists of the orofacial and medical history, as well as the orofacial examination. Data were statistically analyzed with chi-square test and Bonferroni correction, one-way ANOVA with Tukey *post hoc* test, the two-step cluster and decision tree methods. **Results:** There were diferences in pain descriptors, pain in maximum mouth opening, number of trigger points, and history of previous surgery between the groups, which were classified into trigeminal neuralgia, burning mouth syndrome, temporomandibular disorders and trigeminal posttraumatic neuropathic pain with classification analysis. **Conclusions:** The EDOF-HC is a clinical supportive tool for the assessment of orofacial pain. The instrument may be used to support data collection from anamnesis and examination of patients according to the diagnostic criteria of most common orofacial conditions. It is also useful in the investigation of local and systemic abnormalities and contributes for the diagnosis of conditions that depend on exclusion criteria.

Keywords: Neuropathic pain; Orofacial Pain; Trigeminal Neuralgia; Temporomandibular Disorders; Diagnosis; Questionnaire.

RESUMO

Introdução: Instrumentos diagnósticos são necessários para a anamnese e exame da dor orofacial, auxiliando na identificação das causas potenciais de dor. **Objetivo:** Avaliar o Questionário da Equipe de Dor Orofacial (EDOF-HC) na abordagem e diagnóstico da dor orofacial. **Métodos:** Ao todo, 142 pacientes foram avaliados e classificados de acordo com os critérios da Sociedade Internacional de Cefaleias e da Associação Internacional para o Estudo da Dor. Todos foram avaliados com o questionário EDOF-HC, que consiste na anamnese orofacial e médica, além do exame físico orofacial. Os dados foram analisados estatisticamente com os testes qui-quadrado com correção de Bonferroni, ANOVA de um fator e *post hoc* de Tukey, além dos métodos de classificação em *cluster* e árvore decisória. **Resultados:** Houve diferenças entre os diagnósticos quanto aos descritores da dor, dor na abertura bucal máxima, número de pontos-gatilho mastigatórios e história prévia de cirurgia, o que esteve de acordo com a classificação nos diagnósticos de neuralgia do trigêmeo, síndrome da ardência bucal, disfunção temporomandibular e dor neuropática pós-traumática trigeminal. **Conclusões:** O Questionário da Equipe de Dor Orofacial (EDOF-HC) mostrou ser um instrumento de apoio para a avaliação da dor orofacial, útil na coleta de dados de anamnese e exame clínico dos pacientes, observando os principais sinais e sintomas relacionados aos critérios diagnósticos das condições orofaciais dolorosas mais comuns. Também é útil na avaliação de comorbidades locais e sistêmicas e contribui para o diagnóstico de condições que dependem em critérios de exclusão.

Palavras-chave: Neuralgia; Dor Facial; Neuralgia do Trigêmeo; Transtornos da Articulação Temporomandibular; Diagnóstico; Questionário.

The diagnosis of orofacial pain is a challenge due to the complexity of the trigeminal nuclear system, the high frequency of referred pain in the craniofacial region and the high prevalence of pain diagnoses in this area[1,2]. Although neuropathic pain has specific characteristics that help in the identification of the diagnostic entity (e.g., shock-like and burning descriptors, sensory loss, alodynia)[3,4], there are idiopathic conditions based on exclusion

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criteria (neuropathic or controversial), such as persistent idiopathic facial pain (PIFP), atypical odontalgia (AO) and burning mouth syndrome (BMS)[5,6], which need a careful investigation that considers other primary potential causes of pain. Besides that, temporomandibular disorder (TMD) is characterized by a dysfunction of the masticatory system, and it may be the primary or secondary diagnosis among orofacial pain conditions[7].

Over the last decades, the Orofacial Pain Clinic Questionnaire (EDOF-HC) has been used as the main tool to obtain relevant information from patients with orofacial pain in our clinic[8]. It is in accordance with the diagnostic criteria from the International Association for the Study of Pain (IASP)[9] and the International Headache Society (IHS)[10]. Our group has published several studies on the diagnoses of orofacial conditions and characteristics that used this questionnaire in the methodology[11,12,13,14,15], and it has shown to be effective to obtain major information from the patient's anamnesis and examination to gather clinical hypotheses for the diagnosis.

One of the main challenges in patients with orofacial pain is the identification of masticatory musculoskeletal complaints that correspond to primary TMD, myofascial symptoms that might be secondary to other orofacial diagnoses and neuropathic conditions of the craniofacial region[11]. Within this scenario the aim of the present study was to evaluate the EDOF-HC as a tool in the assessment and diagnosis of orofacial pain.

METHODS

Subjects

Overall, 142 patients with orofacial pain from the Orofacial Pain Clinic of a general hospital participated in the study. All patients who came for the evaluation of neuropathic orofacial pain between 2002 and 2012 were included in research. In this sample, 121 (85.2%) were female and the mean ages were 55.9±15.6 (confidence interval: 53.3≤μ≤58.5) years.

All patients were evaluated by a trained dentist, who is specialized in orofacial pain and temporomandibular disorders. They were diagnosed according to the criteria from the IHS[10] and the criteria of IASP[8]. Of them, 42 (29.6%) had trigeminal neuralgia, 36 (25.4%) had BMS, 12 (8.5%) had PIFP, 12 (8.5%) had trigeminal posttraumatic neuropathic pain (tPTN), 30 (21.1%) had TMD, and 10 (7.0%) had AO. These diagnostic criteria aim to identify the patients of each condition, based on their clinical features and presentation, to achieve relatively homogeneous samples for a comparision between the criteria and other diagnostic tools, such as a questionnaire.

Evaluation

The EDOF-HC[14] consists of three separate sections: orofacial anamnesis, medical anamnesis, and clinical examination (Appendix 1 — English version; the Brazilian version is available trough contact with the corresponding author of the manuscript).

In this tudy, we included data from the orofacial anamnesis and clinical examination, which consists of: demographic characteristics, pain complaints and duration, pain intensity and descriptors, triggering, worsening and alleviation factors, crises characteristics, periodicity, oral habits, pain when waking-up, previous dental and surgical treatments, quality of chewing, bruxism, quality of sleep, earache, headache and body pain complaints, sensation of tired face, and the evaluation of pain in mandibular movements, articular noises, maximum mouth opening, masticatory and cervical muscular palpation, dental occlusion, evaluation of cervical movements, use of prosthesis, and characteristics of facial skin, oral mucosa, tongue, periodontal tissues and teeth.

Statistical analysis

All data were distributed in tables, and the descriptive analysis included frequencies, percentages (categorical data) and means, standard deviations and confidence intervals (quantitative data). Missing data were treated as missing and not excluded or substituted by any value. Normal distribution was assumed by the Central Limit Theorem. The following statistical tests were used: chi-square with Bonferroni correction, and one-way ANOVA with Tukey *post hoc* test. Data were classified after a descriptive analysis with two-steps cluster and outliers treatment, which excluded one case (0.7%), and with the decision tree (90% training sample).

The level of significance was 5% and the analysis was performed with the SPSS software 17.0 (IBM).

RESULTS

Patients with BMS and TN were older than the other patients (mean ages of 62.9±13.1 and 61.6±12.6 respectively), there were proportionally less women in the groups of TN (30; 71.4% women) and PIFP (7; 58.3% women) than in the other groups, and there were less patients working in the groups of BMS (9; 25.0%) and tPTN (3; 25.0%).

According to pain characteristics, the only difference was of pain descriptors (Table 1). TN was associated to shock-like pain, BMS to burning, and TMD to throbbing and multiple descriptors. There were no differences between the groups of pain intensity (p=0.345), number of pain descriptors (p=0.167) and duration of pain (p=0.064).

TN, BMS and TMD had specific characteristics of worsening factors and spontaneous/provoked pattern (Table 1). TN was associated to fewer oral habits and a shorter pattern of duration, and there were diferences between the groups, according to previous treatments (Table 2).

Most patients presented a bad (32; 22.5%) or regular (43; 30.3%) quality of chewing, with no diferences between the groups (p=0.133); 80 (56.3%) patients had pain when waking-up and 66 (46.5%) had the sensation of tired face. The groups of patients also had similar periodicity (daily in 118; 83.1%, p=0.113), pain in all mandibular movements (51; 35.9%, p>0.050), and bruxism (awake: 6; 4.2%, p=0.831 and asleep: 38; 26.8%, p=0.468).

There were no diferences in the prevalence of earache (p>0.050) and the quality of sleep (p=0.166). However, patients with TMD had more headaches (26; 86.7%, p=0.005), body pain (24; 80%, p=0.005), and pain in cervical movements (22; 73.3%, p=0.005). Pain at the palpation of the temporomandibular joint was also worse in TMD patients than in the other groups (24; 80%, p<0.001, the worst in TMD). These patients had more pain at maximum mouth opening and more trigger points, whereas TN patients had the lowest mean of trigger points (Table 3).

There were no diferences in the prevalence of periodontal disease between the groups (p=0.453) or in the use of dentures (p=0.690). The groups were also

Table 1. Pain characteristics and patterns according to the diagnosis.

	Spontaneous or provoked	Main pain descriptor	Worsening factors	Alleviation factors
TN (42; 29.6%)	27 (54.3%) spontaneous 14 (33.3%) provoked* 1 (8.3%) missing	33 (78.6%) shock-like** 8 (19.0%) multiple 1 (2.4%) numbness	13 (31.0%) cold** 1 (2.4%) warm 12 (28.6%) emotional distress 2 (4.8%) acid or spicy food 13 (31.0%) chewing 9 (21.4%) talking** 6 (14.3%) mandibular movements 3 (7.1%) touch	18 (42.9%) medication 1 (2.4%) physiotherapy 4 (9.5%) rest 4 (9.5%) emotional coping 1 (2.4%) warm
BMS (36; 25.4%)	35 (97.2%) spontaneous** 1 (2.8%) missing	1 (2.8%) shock-like 25 (69.4%) burning** 9 (25.0%) multiple 1 (2.8%) missing	2 (5.6%) cold 2 (5.6%) warm 7 (19.4%) emotional distress 4 (11.1%) acid or spicy food 4 (11.1%) chewing 1 (2.8%) touch	11 (30.6%) medication 2 (5.6%) physiotherapy 1 (2.8%) rest 2 (5.6%) cold 4 (11.1%) food
TMD (30; 21.1%)	20 (66.7%) spontaneous 8 (26.7%) provoked 2 (6.7%) missing	2 (6.7%) shock-like 1 (3.3%) burning 17 (56.0%) multiple** 7 (23.3%) throbbing** 2 (6.7%) pressing 1 (3.3%) missing	4 (13.0%) cold 1 (3.3%) warm 6 (20.0%) emotional distress 5 (16.7%) chewing 3 (10.0%) talking 5 (16.7%) mandibular movements 6 (20.0%) exercises**	14 (46.7%) medication 5 (16.7%) physiotherapy 7 (23.3%) rest 3 (10.0%) emotional coping 2 (6.7%) warm
tPTN (12; 8.5%)	9 (75.0%) spontaneous 2 (16.7%) provoked 1 (8.3%) missing	5 (41.7%) shock-like 5 (41.7%) multiple 1 (8.3%) numbness 1 (8.3%) missing	3 (25.0%) cold 1 (8.3%) warm 3 (25.0%) emotional distress 3 (25.0%) chewing 2 (16.7%) talking 1 (83.0%) mandibular movements	3 (25.0%) medication 1 (8.3%) physiotherapy 3 (25.0%) rest 2 (16.7%) warm
PIFP (12; 8.5%)	10 (83.3%) spontaneous 2 (16.7%) provoked	1 (8.3%) burning 7 (58.3%) multiple 3 (25.1%) throbbing 1 (8.3%) missing	5 (41.7%) cold 5 (41.7%) emotional distress 2 (16.7%) chewing 1 (8.3%) teeth brushing	7 (58.3%) medication 2 (16.7%) rest
AO (10; 7.0%)	9 (90.0%) spontaneous 1 (10.0%) provoked	8 (80.0%) burning 1 (10.0%) multiple 1 (10.0%) throbbing	2 (20.0%) cold 1 (10.0%) warm 1 (10.0%) chewing 2 (20.0%) mandibular movements 1 (10.0%) teeth brushing	1 (10.0%) medication 2 (20.0%) physiotherapy 1 (10.0%) rest 1 (10.0%) food
p-value*	0.011	<0.001	0.032	>0.050

TN: trigeminal neuralgia; BMS: burning mouth syndrome; TMD: temporomandibular disorder; tPNH: trigeminal postherpetic neuralgia; PIFP: persistent idiopathic facial pain; AO: atypical odontalgia. *Chi-square test; **significance after Bonferroni correction.

similar about dental occlusion. In the complete sample, 7 (4.9%) had open mouth, 16 (11.3%) overbite, 4 (2.8%) crossbite, 3 (2.1%) overjet, and 27 (19.0%) had loss of vertical dimension. Patients with TN had fewer remaining teeth (11.7±11.2p=0.007) and patients with BMS had more abnormalities at the tongue than the other patients (Table 4).

Cluster classification distributed the patients according to this previous descriptive analysis into three groups (TN, BMS, TMD) and one of outliers (tPTN). OA and PIFP had variable patterns and were not mostly included in only one cluster (Table 5). In the decision tree analysis, the number of trigger points was the first and only fator of classification, significant to distinguish TN from TMD (Figure 1).

DISCUSSION

This study shows that the EDOF-HC was able to distinguish between TN, BMS, TMD and tPTN, according to the pain descriptors, pain in mouth opening and number of trigger points, and previous history of surgery. Although PIFP and OA did not present typical characteristics, these conditions are based on exclusion[10] and, in that aspect, this instrument showed to be complete due to the wide anamnesis and examination to determine potential primary causes of pain in these patients. In a certain way, the study shows that the clinical features of patients, assessed with the questionnaire, correspond to the diagnostic criteria of those conditions, making the questionnaire reliable for the clinical activity during the diagnosis of orofacial pain diseases.

Table 2. Previous dental treatments, surgeries, oral habits and crises according to the diagnosis.

	Previous dental treatments	Number of previous surgeries	Crises duration	Oral habits
TN (42; 29.6%)	20 (47.6%) medication 3 (7.1%) physiotherapy 14 (33.3%) dental 6 (14.3%) neurosurgery 3 (7.1%) laser 7 (16.7%) acupuncture 1 (2.4%) homotherapy 1 (2.4%) splint 2 (4.8%) warm compression	0.24±0.62	14 (33.3%) seconds** 7 (16.7%) minutes 7 (16.7%) hours 12 (28.6%) days 2 (4.8%) missing	6 (14.3%)**
BMS (36; 25.4%)	13 (36.1%) medication 4 (11.1%) topic medication** 5 (13.9%) physiotherapy 3 (8.3%) surgery 1 (2.8%) laser 1 (2.8%) acupuncture	0.11±0.40	3 (8.3%) minutes 11 (30.6%) hours 21 (58.3%) days 1 (2.8%) missing	15 (41.7%)
TMD (30; 21.1%)	12 (40.0%) medication 9 (30.0%) physiotherapy 1 (3.3%) dental 2 (6.7%) surgery 8 (26.7%) acupuncture 3 (10.0%) splint 1 (3.3%) warm compression	0.03±0.18	2 (6.7%) seconds 4 (13.3%) minutes 7 (23.3%) hours 15 (50.0%) days 2 (6.7%) missing	11 (36.7%)
tPTN (12; 8.5%)	5 (41.7%) medication 1 (8.3%) physiotherapy 1 (8.3%) dental 6 (50%) surgery** 1 (8.3%) acupuncture	0.58±0.51***	2 (16.7%) minutes 6 (50.0%) hours 3 (25.0%) days 1 (8.3%) missing	6 (50.0%)
PIFP (12; 8.5%)	8 (66.7%) medication 2(16.7%) physiotherapy 4 (33.3%) dental 3 (25.0%) surgery 5 (41.7%) acupuncture** 1 (8.3%) splint	0.25±0.45	1 (8.3%) minutes 6 (50.0%) hours 4 (33.3%) days 1 (8.3%) missing	6 (50.0%)
AO (10; 7.0%)	4 (40.0%) medication 2 (20.0%) physiotherapy 4 (40.0%) dental 1 (10.0%) surgery 1 (10.0%) acupuncture 1 (10.0%) splint	0.30±0.48	1 (10.0%) minutes 2 (20.0%) hours 7 (70.0%) days	5 (50.0%)
p-value*	<0.017	0.009	<0.001	0.034

TN: trigeminal neuralgia; BMS: burning mouth syndrome; TMD: temporomandibular disorder; tPNH: trigeminal postherpetic neuralgia; PIFP: persistent idiopathic facial pain; AO: atypical odontalgia. *Chi-square and oneway ANOVA; **significance after Bonferroni correction; ***significance Tukey *post hoc* test.

From these results, it becomes evident that pain descriptors are a potential clue for the etiology of pain, as supported by literature[16], but trigger points and pain in maximum mouth opening were important in the evaluation and determination of TMD. Other associated factors were the shock-like descriptor in TN, and burning in BMS (located at the tongue and with a high frequency of tongue abnormalities), which corresponds to the scientific literature[4,6]. tPTN was associated to the surgical procedures that are common etiological factors of this condition[3,10]. Moreover, TN was associated to provoked pain (pain triggering) and a short duration (seconds)[4], whereas BMS had spontaneous beginning of the crises.

This instrument makes a complete evaluation of the orofacial region, including the examination of all oral tissues and the masticatory system, which turns it into a good tool for the screening of potential primary causes of pain, mostly relevant for PIFP, BMS and AO (due to the diagnostic criteria of this conditions, dependent on exclusion)[5,6]. However, it is also important for other pains, such as TN (that might have secondary causes of pain from the teeth — due to lack of oral hygiene — and myofascial pain — due to facial contractions during the crises and sensitization of the masticatory muscular system from pain chronification)[11]. These secondary causes of pain may play a role in

Table 3. Jaw evaluation according to the diagnosis.

	Articular noises	Number of trigger points	Max mouth opening (mm)	Pain at maximum mouth opening
TN (42; 29.6%)	2 (4.8%) crepitus 12 (28.6%) click	1.4±2.0***	45.6±8.2	9 (21.4%)
BMS (36; 25.4%)	6 (16.7%) crepitus 9 (25%) click	1.9±2.4	45.0±8.4	9 (25.0%)
TMD (30; 21.1%)	4 (13.3%) crepitus 8 (26.7%) click	4.1±1.8***	44.4±8.6	21 (70.0%)**
tPTN (12; 8.5%)	2 (16.7%) crepitus 3 (25%) click	4.2±2.5	43.6±8.0	8 (66.7%)
PIFP (12; 8.5%)	1 (8.3%) crepitus 2 (16.7%) click	2.5±2.5	42.3±6.3	5 (41.7%)
AO (10; 7%)	3 (30%) click	1.7±1.6	46.0±8.1	0 (0%)
p-value*	0.848	<0.001	0.825	<0.001

TN: trigeminal neuralgia; BMS: burning mouth syndrome; TMD: temporomandibular disorder; tPNH: trigeminal postherpetic neuralgia; PIFP: persistent idiopathic facial pain; AO: atypical odontalgia. *Chi-square and oneway ANOVA; **significance after Bonferroni correction; ***significance after Tukey *post hoc* test.

Table 4. Orofacial examination according to the diagnosis.

	Facial skin	Oral mucosa	Tongue	Teeth
TN (42; 29.6%)	1 (2.4%) erithema 1 (2.4%) spots 2 (4.8%) ulcers	1 (2.4%) candiasis 2 (4.8%) gingival hyperplasia 1 (2.4%) ulcer 1 (2.4%) petechiae	11 (26.2%) fissured 14 (33.3%) saburrous 2 (4.8%) dry	3 (16.7%) decays 7 (16.7%) teeth wear of bruxism 1 (2.4%) implants 1 (2.4%) sensitivity
BMS (36; 25.4%)	1 (2.8%) linfonodes 2 (5.6%) spots 2 (5.6%) ulcers	2 (5.6%) mucositis 2 (5.6%) ulcer 2 (5.6%) linea alba	15 (41.7%) fissured** 10 (27.8%) saburrous** 2 (5.6%) dry 2 (5.6%) erithematous	4 (11.1%) decays 5 (13.9%) teeth wear by bruxism 1 (2.8%) residual roots
TMD (30; 21.1%)	1 (3.3%) assimetry 3 (10.0%) linfonodes	1 (3.3%) mucositis 1 (3.3%) ulcer 2 (6.7%) iquen planus 1 (3.3%) linea alba	5 (16.7%) fissured 1 (3.3%) saburrous 2 (6.7%) dry	1 (3.3%) decays 4 (13.3%) teeth wear by bruxism
tPTN (12; 8.5%)	2 (16.7%) assimetry 1 (8.3%) linfonodes 2 (16.7%) erithema	1 (8.3%) candidiasis	2 (16.7%) fissured 1 (8.3%) saburrous 1 (8.3%) erithematous	1 (8.3%) teeth wear by bruxism 1 (8.3%) fracture
PIFP (12; 8.5%)	2 (16.7%) linfonodes 1 (8.3%) spots	1 (8.3%) ulcer	3 (25.0%) fissured 2 (16.7%) saburrous	4 (33.3%) teeth wear by bruxism
AO (10; 7%)	1 (10.0%) assimetry	1 (10.0%) linea alba	2 (20.0%) fissured 4 (40.0%) saburrous	1 (10.0%) teeth wear by bruxism
p-value*	0.144	0.933	0.016	0.636

TN: trigeminal neuralgia; BMS: burning mouth syndrome; TMD: temporomandibular disorder; tPNH: trigeminal postherpetic neuralgia; PIFP: persistent idiopathic facial pain; AO: atypical odontalgia. *Chi-square; **significance after Bonferroni correction.

the whole complaint of the patient and need to be assessed and treated as well as the primary causes[17].

Emotional distress and temperature variations, as well as the general impairment of mandibular functions, were present in all groups of patients, with no statistical differences. These are commonly observed in pain patients in general[18]. However, the examination of mandibular movements (pain in maximum mouth opening and number of trigger points), as well as the complaint of pain in other parts of the body (including the head and neck) were more associated to TMD, indicating that these variables are more indicative of TMD than the impairment of mandibular function and chewing, which occurred in all groups. TMD is recognized as commonly associated to spread pain and other myofascial disorders[19], as well as having a high prevalence of comorbidities[20,21], and the EDOF-HC questionnaire was able to screen and evaluate these characteristics in patients.

One limitation of the study is the wide range of characteristics of some of the orofacial conditions that were included. However, these are important entities in the differential diagnosis and the highest challenges in the clinical assessment. The EDOF-HC evaluated a broad spectrum of symptoms and signs with a detailed anamnesis and a complete examination of orofacial tissues that may be involved in primary and secondary causes of orofacial pain.

In conclusion, the EDOF-HC seems to be a supportive tool for the assessment of orofacial pain and can be used to support data collection from anamnesis and patient examination. Moreover, the EDOF-HC is aligned with the diagnostic criteria of most common orofacial conditions and allows investigation of local and systemic abnormalities, thus assisting in the exclusion of primary causes of facial pain and the determination of underlying diagnoses.

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Table 5. Cluster Classification in two-steps.

		Cluster 1 (40; 28.4%)	Cluster 2 (39; 27.6%)	Cluster 3 (43; 30.5%)	Outlier Cluster (19; 13.5%)	p-value*
Diagnoses	TN	36**	2	0	4	<0.001
	BMS	1	0	34**	1	
	TMD	1	27**	1	1	
	tPTN	2	2	0	7**	
	PIFP	0	8	0	4	
	OA	0	0	8	2	
Pain descriptors	Shock-like	37**	1	0	3	<0.001
	Burning	0	0	33**	2	
	Throbbing	0	9**	0	2	
	Multiple	3	27**	9	8	
	Numbness	0	0	0	2*	
	Pressing	0	2	0	0	
	Missing	0	0	1	2	
Previous surgery	Yes	3	4	2	12	<0.001
	No	37	35	41	7**	
Pain maximum MO	Yes	5	30**	9	7	<0.001
	No	35	9	34	12	
Abnormalities at the tongue	Yes	16	11	31**	11	<0.001
	No	24	28	12	8	
Mean number of trigger points		1.40±1.851 (0.81≤μ≤1.99)	4.21±2.041*** (3.54≤μ≤4.87)	1.93±2.282 (1.23≤μ≤2.63)	3.26±2.491 (2.06≤μ≤4.46)	<0.001

TN: trigeminal neuralgia; BMS: burning mouth syndrome; TMD: temporomandibular disorder; tPNH: trigeminal postherpetic neuralgia; PIFP: persistent idiopathic facial pain; AO: atypical odontalgia; MO: mouth opening. *Chi-square and oneway ANOVA; **significance after Bonferroni correction; ***significance with Tukey *post hoc* test.

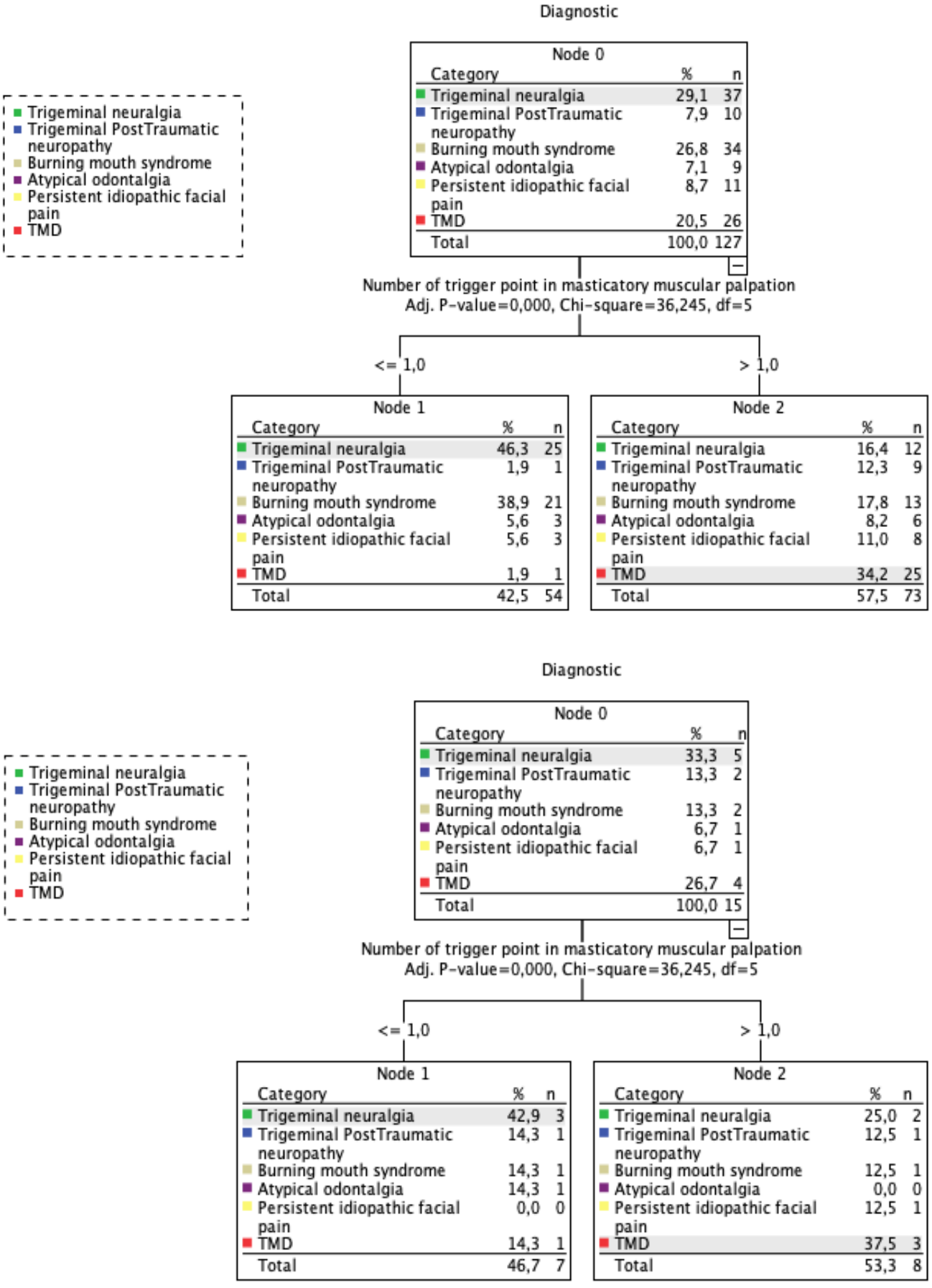

Figure 1. Decision tree. (A) Training sample (90%); (B) test sample (10%).

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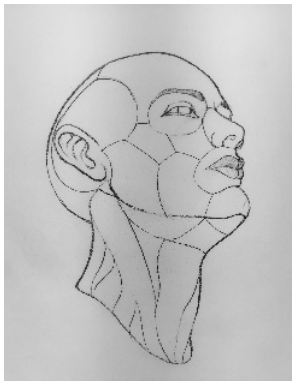
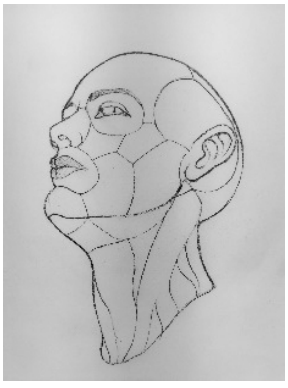
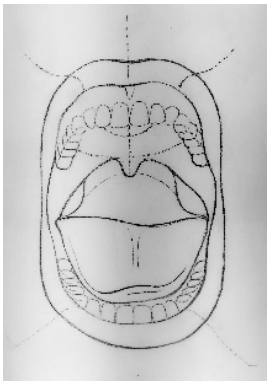
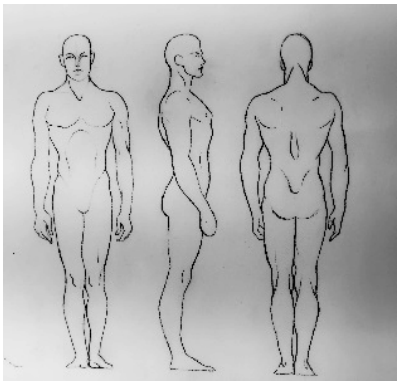
Appendix 1. The Orofacial Pain Clinic Questionnaire (EDOF-HC).

Date: ___/___/___. Phone number:_____.
Name:_____. Responsible (under 18 yo):_____
Gender: _____; Age:_____; Height:_____; Weight:_____; Ethnicity:_____.

Section 1: Orofacial anamnesis
1.Pain complaints:_____.
2.Duration:_____.
Description of complaints:_____.
3. Periodicity: ( ) Morning; ( ) Afternoon; ( ) Evening/Night; ( ) Indifferent.
4. How is pain? ( ) provoked; ( ) spontaneous;
5. Pain descriptors: ( ) burning; ( ) throbbing; ( ) pressing; ( ) shock-like; ( ) aching; ( ) stabbing; ( ) other:_____.
6. Intensity: ( ) Mild; ( ) Moderate; ( ) Severe; Numeric verbal scale (0 to 10): _____.
7. Worsening factors:_____.
8. Alleviating factors: _____.
9. Oral habits: ( ) biting tongue; ( ) biting oral mucosa; ( ) biting lips; ( ) other:_____.
10. Chewing: ( ) Right; ( ) Left; ( ) Bilateral.
11. Chewing quality: ( ) good; ( ) regular; ( ) bad; ( ) doesn`t know; ( ) painful; ( ) other:_____.
12. Sensation of tired face: ( ) no; ( ) yes: ( ) when waking-up; ( ) when chewing; ( ) when talking; ( ) when smiling;
( ) other:_____.
13. Teeth clenching or grinding: ( ) sleep bruxism; ( ) awake bruxism; ( ) doesn`t know;
( ) who told you?_____.
14. Articular noises: ( ) no; ( ) yes: side:_____ / When: ( ) mouth opening; ( ) talking;
( ) chewing; ( ) other:_____.
15. Pain in mandibular movements: ( ) no; ( ) yes: ( ) mouth opening; ( ) protrusion; ( ) right laterality; ( ) left laterality;
( ) other:_____.
16. Earache: ( ) no; ( ) yes: side:_____. Did you go to ENT evaluation? ( ) no; ( ) yes:_____.
17. Headache: ( ) no; ( )y es: where:_____. Did you go to the neurologist? ( ) no; ( ) yes:_____.
18. Body pain: ( ) no; ( ) yes: where:_____. Did you go to the physician? ( ) no; ( ) yes:_____.
19. Have you ever undergone surgery, or were you involved in an accident? ( ) no; ( ) yes.
Describe it:_____.
20. Point to the areas of your facial pain: _____ ( ) right; ( ) left; ( ) bilateral.
21. Point to the areas of your body pain: _____ ( ) right; ( ) left; ( ) bilateral.

Section 2: medical anamnesis
1.Medical history:
( ) rheumatoid arthritis; ( ) asthma; ( ) bronchitis; ( ) hepatites; ( ) amygdalitis; ( ) stroke; ( ) fibromyalgia; ( ) sinusites; ( ) rhinitis; ( ) hypertension; ( ) diabetes; ( ) gastric ulcer; ( ) gastritis; ( ) heat disease; ( ) kidney disease; ( ) depression; ( ) infection; ( ) migraine; ( ) herpes zoster; ( ) Paskinson's Disease; ( ) Other:_____.

2.Are you currently in medical treatment: ( ) no; ( ) yes.
Describe: _____.

3. Medications in use:
_____.

Section 3: clinical examination
1. Face: ( ) assymetry; ( ) prognatism; ( ) laterognatism; ( ) Hypertrophy: ( ) masseter / ( ) temporal; ( ) right / ( ) left.
2. Facial skin:_____.
3.Linfonodes:_____.
4. Oral mucosa: _____.
5. Tongue: _____.
6. Neurological abnormalities: _____.
7. Periodontal tissues: _____.
8.Teeth (decay, missing, percussion/sensivity tests): _____
18 17 16 15 14 13 12 11 21 22 23 24 25 26 27 28
48 47 46 45 44 43 42 41 31 32 33 34 35 36 37 38

9. Occlusal interferences: _____.
10. Open bite: ( ) no; ( ) yes.
11. Crossbite: ( ) no; ( ) yes: ( ) anterior / ( ) posterior – ( ) right / ( ) left.
12. Deep bite: ( ) no; ( ) yes: ( ) a / ( ) b / ( ) c.
13. Teeth abrasion: ( ) no; ( ) yes: ( ) incisal; ( ) incisal third; ( ) middle third; ( ) cervical third.
14. Angle classification: ( ) I; ( ) II; ( ) III.
15.Mandibular movements: maximum mouth opening: _____mm – ( ) no pain / ( ) painful. Protrusion: _____mm – ( ) no pain / ( ) painful.
( ) right laterality: _____mm – ( ) no pain / ()painful. Left laterality: _____mm – ( ) no pain / ( ) painful.
16. Temporomandibular joint noises: ( ) no; ( ) POP; ()mild crepitation; ( )severe crepitation;
( ) Click. ( ) Right / ( ) Left. ( ) start mouth opening / ( ) middle mouth opening / ( ) end mouth opening / ( ) start mouth closing /
( ) middle mouth closing / ( ) end mouth closing.
17. Temporomandibular joint (TMJ) and muscular palpation:

	Right	Left	Observations
TMJ – lateral			
TMJ - posterior			
Masseter inferior			
Masseter middle			
Masseter superior			
Masseter intraoral			
Temporal anterior			
Temporal middle			
Temporal posterior			
Temporal intraoral			
Digastric anterior			
Digastric posterior			
Esternocleidomastoid superior			
Esternocleidomastoid middle			
Esternocleidomastoid inferior			
Splenius cervical			
Splenius head			
Suboccipital			
Trapezius shoulder			
Trapezius neck			

18. Observations:_____.
19. Diagnostic hypotheses: _____.
20.Complementary exams_____.
20. Final hypotheses: _____.
21. Treatment:_____.