Does manual therapy applied in the cervical and thoracic regions influence on the signs and symptoms of temporomandibular dysfunction? Clinical, randomized, placebo-controlled study

Terapia manual aplicada na região cervical e torácica influência nos sinais e sintomas de disfunção temporomandibular? estudo clínico, randomizado, placebo-controlado

Lais Silva Ferreira[1]
Cintia Moraes Gutierrez[1]
Fernanda Cardoso Nakamoto[1]
Leticia Neves Mode[1]
Margarete Nobilo[1]
Taisi Antunes da Cunha[1]
Alcylene Carla dos Santos[1]
Daniela Aparecida Biasotto-Gonzalez[1]

[1]Program in Rehabilitation Sciences at Universidade Nove de Julho (UNINOVE), São Paulo, São Paulo, Brasil.
E-mail: fisiolaisferreira@uni9.edu.br

INTRODUCTION

Temporomandibular disorder (TMD) is a complex and multifactorial disorder commonly associated with other conditions such as cervical spine disorders (ARMIJO-OLIVO et al., 2010). Although there is evidence of a correlation between TMD and neck disorders, treatment proposals include a local and direct approach. Since the etiology of TMD is multidimensional (MIETTINEN et al., 2017), the present study hypothesizes that a cervical and thoracic approach could reduce the signs and symptoms of TMD. Therefore, the objective of the present study is to evaluate the effects of a manual therapy protocol applied on the cervical and thoracic region on the signs and symptoms of TMD.

METHODOLOGY

30 subjects diagnosed with TMD according to the RDC/TMD, classified as severe or moderate, according to the Fonseca Anamnestic Index were randomized into 2 groups (Experimental and Placebo). Interventions were applied twice a week, totaling 8 sessions (Figures 1-8). The individuals were evaluated regarding TMD severity, by the IAF; Pain in the TMJ and masticatory muscles, using the Numerical Pain Scale; Mandibular range of motion (ROM), through pachymetry; Level of craniofacial pain and dysfunction, according to the Craniofacial Pain and Dysfunction Index (IDD-CF); Level of cervical dysfunction, according to the Cervical Dysfunction Index (NDI), in pre-intervention, post-intervention and follow-up conditions 30 days after the end of the protocol. The study was approved by the Ethics Committee (CAAE: 54021816.9.0000.5511,) and is registered with Clinical Trials under number NCT02822469.

Figure 1- Global relaxation technique with deep breathing.

Figure 2 - Technique for mobilizing the thoracic vertebrae (posteroanterior).

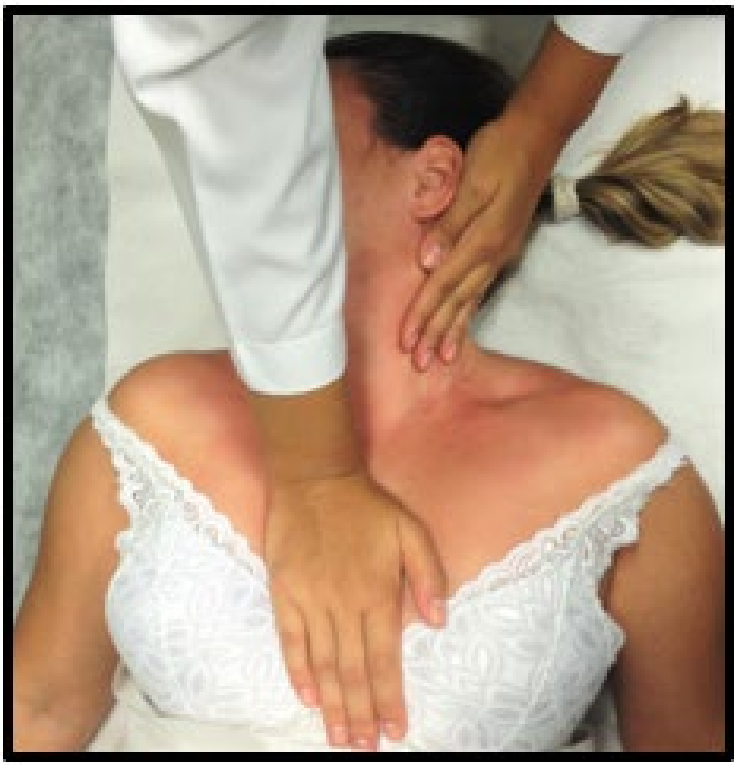
Figure 3 - Technique for myofascial release of the scapular muscles.

Figure 4 - Myofascial release technique for the upper trapezius muscle.

Figure 6 - Deep sliding technique to release the posterior cervical musculature (upper trapezius and spinal erectors – cervical portion).

Figure 7 - Deep sliding techniques on the anterior cervical musculature (supra and infrahyoid, platysma, sternocleidoocytomastoid).

Figure 8 - Deep gliding technique on the anterolateral cervical musculature (sternocleidooccipitotomastoid and scalene).



RESULTS

Table 1 shows the comparison of the clinical variables measured by the questionnaires and scales (TMD severity, pain and neck pain level) of the two groups in the three moments studied: pre-intervention, post-intervention and follow-up. There was no statistically significant difference in intra and intergroup comparisons

Table 1 - Comparison for three moments (clinical variables) experimental and placebo groups. (Source: authors)

		PRÉ		PÓS		FOLLOW-UP		
Variáveis	**Gupo**	**Media**	**DP**	**Media**	**DP**	**Média**	**DP**	**p-valor**
IAF	Experimental	63.0aA	13.6	51.4 aA	21.8	56.4 aA	16.6 aA	0.5
	Placebo	61.0 aA	13.5	57.1 aA	16.1	52.5 aA	18.8 aA	
IDD-CF	Experimental	14.3 aA	5.6	8.4 aA	6.4	10.8 aA	5.8 aA	0.5
	Placebo	13.5 aA	6.1	10.6 aA	4.7	9.6 aA	5.9 aA	
NDI	Experimental	6.8 aA	4.5	4.9 aA	3.8	6.9 aA	4.5 aA	0.3
	Placebo	9.5 aA	6.5	8.1 aA	4.4	6.6 aA	3.5 aA	
END	Experimental	4.1 aA	2.2	2.1 aA	2.7	2.7 aA	2.6 aA	1.0
	Placebo	4.3 aA	1.5	2.4 aA	2.1	3.0 aA	2.2 aA	

Médias seguidas de mesma letra minúscula (fixando grupo) não diferem significativamente ao nível de 5% pelo teste de Tukey. Médias seguidas de mesma letra maiúscula (fixando momento) não diferem significativamente ao nível de 5% pelo teste de Tukey. IAF: Índice anamnésico de Fonseca; IDD-CF: Inventário de dor e disfunção craniofacial; NDI: Índice de disfunção cervical; END: Escala numérica de dor

DISCUSSION

It is possible that treatment techniques applied to the cervical region for the management of TMD are justified only in the presence of associated local dysfunction. Otherwise, the treatment could be applied directly (ARMIJO-OLIVO et al., 2016). The fact that only the distance treatment was carried out is considered to be a limitation of the design chosen for the study. It is suggested that in addition to stratifying the sample by the level of cervical dysfunction, the study of the effects of cervical techniques is associated with local treatments, previously established in the literature (CALIXTRE et al., 2015). For none of the variables was found statistically significant difference. significant for the comparison between moments and between groups. However, a case-by-case analysis was performed for each of the variables considering the possibilities or not of clinical improvement of the studied subjects. The TMD severity variable measured by the IAF had very close results (p=0.07) of statistically significant improvement in the post-intervention situation of the experimental group when compared to the placebo group. It is believed that the sample was too small to detect this response, since it was calculated for the temperature outcome. It is suggested that in future studies the calculation of the sample also takes into account the variables obtained through the questionnaires.

CONCLUSION

The proposed treatment protocol, applied on the thoracic and cervical region, did not alter pain, ROM, TMD severity, level of cervical dysfunction in patients with severe and moderate TMD.

REFERENCES

1-MIETTINEN O, ANTTONEN V, PATINEN P. Prevalence of Temporomandibular Disorder Symptoms and Their Association with Alcohol and Smoking Habits. J Oral Facial Pain Headache. 2017; 31(31): 30-36.

2-CALIXTRE, L.B., MOREIRA R.F.C., FRANCHINI, G.H., et al. Manual therapy for the management of pain and limited range of motion in subjects with signs and symptoms of temporomandibular disorder.

3-ARMIJO-OLIVO, S., FUENTES, J., MAJOR, P.W., et al. The association between neck disability and jaw disability. Jounal of Oral Rehabilitation. 2010; 37:670-679.

4-ARMIJO-OLIVO, S., PITANCE, L., SINGH, V., et al. Effectiveness of manual therapy and therapeutic exercise for temporomandibular disorders: Sistematic review and meta-analysis. Physical Therapy. 2016; 96(1):9-25.

FINANCIAL SUPPORT

Universidade Nove de Julho and CAPES (process number 88887.822742/2023-00).