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SCIENTIFIC ARTICLE

Orotracheal intubation and temporomandibular disorder: a longitudinal controlled study

Cláudia Branco Battistella[a,*], Flávia Ribeiro Machado[b], Yara Juliano[c], Antônio Sérgio Guimarães[a], Cássia Emi Tanaka[a], Cristina Talá de Souza Garbim[a], Paula de Maria da Rocha Fonseca[a], Monique Lalue Sanches[a]

[a] *Morphology and Genetics Department, Escola Paulista de Medicina da Universidade Federal de Sao Paulo, São Paulo, SP, Brazil*
[b] *Anesthesiology, Pain and Intensive Care Department, Escola Paulista de Medicina da Universidade Federal de Sao Paulo, São Paulo, SP, Brazil*
[c] *Public Health Department, Santo Amaro University, São Paulo, SP, Brazil*

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KEYWORDS
Temporomandibular joint disorders;
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Abstract
Background and objectives: To determine the incidence of signs and symptoms of temporomandibular disorder in elective surgery patients who underwent orotracheal intubation.
Methods: This was a longitudinal controlled study with two groups. The study group included patients who underwent orotracheal intubation and a control group. We used the American Academy of Orofacial Pain questionnaire to assess the temporomandibular disorder signs and symptoms one-day postoperatively (T1), and the patients' baseline status prior to surgery (T0) was also recorded. The same questionnaire was used after three months (T2). The mouth opening amplitude was measured at T1 and T2. We considered a p value of less than 0.05 to be significant.
Results: We included 71 patients, with 38 in the study group and 33 in the control. There was no significant difference between the groups in age (study group: 66.0 [52.5–72.0]; control group: 54.0 [47.0–68.0]; $p = 0.117$) or in their belonging to the female gender (study group: 57.9%; control group: 63.6%; $p = 0.621$). At T1, there were no statistically significant differences between the groups in the incidence of mouth opening limitation (study group: 23.7% vs. control group: 18.2%; $p = 0.570$) or in the mouth opening amplitude (study group: 45.0 [40.0–47.0] vs. control group: 46.0 [40.0–51.0]; $p = 0.278$). At T2 we obtained similar findings. There was no significant difference in the affirmative response to all the individual questions in the American Academy of Orofacial Pain questionnaire.

* Corresponding author.
E-mails: cbb4680@yahoo.com.br, contato@indof.com.br (C.B. Battistella).

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Conclusions: In our population, the incidence of signs and symptoms of temporomandibular disorder of muscular origin was not different between the groups.

PALAVRAS-CHAVE
Transtornos da articulação temporomandibular;
Síndrome da dor miofascial;
Anestesia geral;
Intubação;
Dor orofacial

Intubação orotraqueal e disfunção temporomandibular: estudo longitudinal controlado

Resumo
Justificativa e objetivos: Determinar a incidência de sinais e sintomas de disfunção temporomandibular (DTM) em pacientes de cirurgia eletiva submetidos à intubação orotraqueal.
Métodos: Estudo longitudinal controlado com dois grupos. O grupo de estudo incluiu pacientes que foram submetidos à intubação orotraqueal e um grupo controle. Usamos o questionário da Academia Americana de Dor Orofacial (AAOP) para avaliar os sinais e sintomas da DTM no primeiro dia de pós-operatório (T1), e os estados basais dos pacientes antes da cirurgia (T0) também foram registrados. O mesmo questionário foi usado após três meses (T2). A amplitude da abertura bucal foi medida em T1 e T2. Consideramos um valor-p inferior a 0,05 como significativo.
Resultados: No total, 71 pacientes foram incluídos, com 38 pacientes no grupo de estudo e 33 no grupo controle. Não houve diferença significativa entre os grupos quanto à idade (grupo de estudo: 66,0 [52,5-72,0]; grupo controle: 54,0 [47,0-68,0], p = 0,117) ou gênero feminino (grupo de estudo: 57,9%; grupo controle: 63,6%, p = 0,621). No T1, não foram encontradas diferenças estatisticamente significativas entre os grupos quanto à incidência de limitação de abertura bucal (grupo de estudo: 23,7% *vs.* grupo controle: 18,2%, p = 0,570) ou amplitude de abertura bucal (grupo de estudo: 45,0 [40,0-47,0] *vs.* grupo controle: 46,0 [40,0-51,0], p = 0,278). Em T2, os resultados obtidos foram semelhantes. Não houve diferença significativa na resposta afirmativa a todas as perguntas individuais do questionário AAOP.
Conclusões: Em nossa população, a incidência de sinais e sintomas de DTM de origem muscular não foi diferente entre os grupos.

Introduction

Temporomandibular disorder (TMD) comprises a number of clinical conditions involving the masticatory muscles, the temporomandibular joint (TMJ) and associated structures. The common signs and symptoms of TMD are clicking noises in the TMJ, a limited jaw opening capacity, deviations in the movement patterns of the mandible and masticatory muscles and TMJ or facial pain.[1–3] TMD is, by far, the most prevalent of all chronic orofacial pain conditions.[4] The prevalence of TMD among individuals presenting at least one clinical sign varies from 40% to 75%.[2] In Brazil, at least one TMD symptom was reported by 39.2% of the population.[5] Sounds in the TMJ and deviations in mouth opening and closing movements occur in approximately 50% of the non-patient population and are considered normal, with no need for treatment.[6] The most common subtype is TMD of muscular origin,[7] and it is characterized by localized pain and tenderness in the masticatory muscles.[8]

During intubation, the TMJ rotation and translation maneuvers used by the anesthesiologist to achieve a maximum opening of the patient's mouth and the atraumatic passage of an endotracheal tube may result in damage to the TMJ apparatus due to the excessive forces being applied either manually or with the laryngoscope. Additionally, damage may occur due to the length of time that the structures are in a ''stressed'' position. Orotracheal intubation has long been considered a risk factor for the development or exacerbation of TMD that includes facial pain.[9,10]

Some studies have described changes in the structures of the masticatory system after orotracheal intubation. These changes can be of either articular[11] or articular and muscular origin.[9,12,13] In contrast, a study showed that intubation techniques do not represent a risk for the development of TMD.[14] An update of the guidelines for the management of the difficult airway by the American Society of Anesthesiologists specifically recommends the preoperative assessment of the TMJ function.[15,16] However, the current evidence in the literature is based on case reports[10,17–20] and small studies.[9,11–13,20] Thus, the aim of this study was to evaluate the incidence of signs and symptoms of TMD of muscular origin in elective surgery patients who underwent orotracheal intubation compared with patients without intubation.