38 - CAPSAICIN AN EVIDENCE FOR AN ATYPICAL TOOTHACHE

CAROLINE GALVÃO LOPES
EDUARDO GROSSMANN
NAIR NARUMI ORITA PAVAN
Universidade Estadual de Maringá
Maringá- Paraná- Brasil
narumiopavan@gmail.com.br

INTRODUTION

Pain is an unpleasant sensation, varying in intensity and location extension, which affects millions of people, often reducing or even disabling functional and routine activities of the individual.

Painful conditions are common in the dental office and the majority of dental pain is odontogenic in nature, originating from pulp and periodontal tissues, however, there are also non-odontogenic odontalgias, and one of these conditions is the atypical odontalgia. The term atypical odontalgia is applied to continuous pain in tooth or tooth socket region, in the absence of any cause dental identificável1.

There is no consensus on a treatment protocol that would be more appropriate to the treatment of neuropathic pain, because it is difficult to diagnose and the lack of well-designed control studies to evaluate the clinical effectiveness of prescription drugs to AO2.

Several drugs have been used in the treatment of atypical odontalgias, among which stand out antidepressants3. In addition to these, there is an association with anticonvulsants and resents oral studies4,5,6,7,provide a alternative of treatment the topical application of capsaicin.

The aim of this paper is to review the literature to provide information regarding the atypical odontalgia regarding clinical features, diagnosis and treatment with capsaicin. For this, we have used in the search database, PubMed, Medline and Lilacs, as well as a manual search of references in English and Portuguese.

DISCUSSION

The atypical odontalgia (AO) was first described by Horton in 1947 and McElin8. It is defined by the International Headache Society as a subgroup of persistent idiopathic facial pain9. But according to Baad - Hansen et al10, is best defined as a neuropathic condition, supported by the fact that most patients with AO have undergone invasive dental surgical procedures, and these procedures can cause deafferentation of trigeminal primary afferent fibers. It is also known as phantom tooth pain10, 11.12.

Patients with AO often have persistent pain localized in the tooth, gums or site of extraction11,13.14. The area most commonly affected is premolars or superior molars area9,11.15.

Despite the pain is felt in the teeth or alveolar process, there is no local pathological conditions that explain, as there are no radiographic findings13. An incorrect or ineffective treatment can perpetuate or generate the chronic pain10. In a study by List et al13 83% of patients with atypical odontalgia stated that the pain began with a dental treatment.

Both genders can be affected, but is more commonly found in women around 40 years9, 10,16,17. According Woda et al17, this prevalence is probably related to female hormones in a retrospective study in women who used hormone supplements, it was discovered that they had 20% to 30% more chronic pain conditions compared with women who did not use this type of supplement. This prevalence is confirmed by several studies11, 12,18,19,however Woolf21 March20and reports that the prevalence increases with age. It is estimated that 18% of women and 9.6% of men over 60 have symptoms of AO22. But according to Craff-Radford et al9 this issue have not been well elucidated and more studies need to be done.

The differential diagnosis should be guided on many factors including the presence of emotional disorders such as depression and anxiety disorders, and the exclusion of dental pathologies 8, 23. Pain that does not have a odontogenic cause like the migraine23, 24, trigeminal neuralgia25, 24, arthritis of the joint temporomandibular25 and temporal arthritis24, burning bucal syndrome26, postherpetic neuralgia25, 27.28, sinusite23, 24 herpeszoster25, must be discarded.

In the study by Saravanan Ram et al11 80% of patients with AO who were submitted to dental procedures did not manage the pain and in some cases made it worse. Although in this study, 3% to 6%of endodontic treatment there were deafferentation, confirms these results Matwychuk et al8, 3% to 6% of patients develop OA after endodontic treatment.

The pain is not only a concern for the person suffering, but also for society, it seriously damages the lives of millions of people around the world, disabling them, often, from work and social life 15.Besides the fact that some psychological pain are more influenced than others. Several drugs have been used in the treatment of atypical odontalgia, among which stand out antidepressants3,19,29, the beneficial effect of the drug is not connected to the treatment of depression, but its analgesic effect, and therapy with opióides6, 30. The use is still controlled and is only indicated for patients with chronic moderate pain, to severe.

Besides these, there is an association with oral anticonvulsants6, 10 and also the use of topical capsaicin5, 10. However, with the administration of these drugs is reduced, but there is rarely a full control of the pain10, 30.

Capsaicin is an irritant and produces a burning sensation in any tissue which enters into contact31. It was first isolated by Thresh, around the year 1846 32, and only in 1919 was given its exact chemical structure33.

It is seen as the only compound able to act pharmacologically in specific neurons and nociceptor fibers, it initially depolarizes these neurons, but in the continuous presence of capsaicin they lose the ability to despolarization34, 35.

According to Philip et al27 initial topical application of capsaicin causes a burning increased sensation, but repeated applications result in desensitization of unmyelinated epidermal nerve fibers, thus leading to a reduction of hyperalgesia.

Capsaicin is available as a cream at a concentration of 0, 025% used 3-4 times a day, or 8% used once a day 36.

Mason et al7 evaluated the efficacy of topical capsaicin in patients with musculoskeletal neuropathic pain. They found that 57% had significant analgesia using capsaicin 0.075%. When using capsaicin 0.025% was the result of 38% improvement. The analgesic effect was 4-8 weeks. These results are similar to Derry's et al38, where they observed improvement in neuropathic pain within 6-12 weeks with repeated use of capsaicin 0.075% and single application of capsaicin 8%.

Corroborating to these studies, Altman et al39 found in a study of 12 weeks, 53% reduction in pain compared to placebo, however in the study of Deal40 in 4 weeks the pain reduction was 33%.

According to Spruce et al41, topical application of capsaicin at a concentration of 0.075% for 4-6 weeks and 3 to 4

times a day have hindered patient compliance with treatment. Silva et al42 conducted a systematic review of randomized controlled trials of patients with AO, using complementary alternative medicine (CAM) compared with other treatments or placebo. In this review the authors found consistent evidences39, 40,43,44,45 that capsaicin 0.025% four times daily for 12 weeks and a 0.015% capsaicin once daily for 6 weeks and capsaicin 0.075% for 4 weeks was effective in the AO.

Hargreaves et al46 postulated that adrenergic agonists inhibit the activation of peripheral terminals of capsaicin-sensitive pulpal fibers and suggest that these drugs can be used in the treatment of postoperative pain.

CONCLUSIONS

Chronic pains are normally difficult diseases to diagnose and treat, because treatments are often ineffective and unnecessary.

Atypical odontalgia is a moderate to strong chronic pain , which may be followed by headache, hyperesthesia and allodynia. The diagnosis is clinical and should be considered the emotional factor.

The use of topical capsaicin on mucosa at different concentrations, as a treatment for chronic pain is possible and it was extensively studied achieving results that motivate further studies in relation to another route of administration, because in this it has some side effects limiting its use. It is a cheap alternative, easily applied and clinical effectiveness in the battle against chronic pain

BIBLIOGRAPHIC REFERENCE

1.Travassos RMC, Santos Neto-Júnior FE, Genú RKP. Avaliação da eficiência de três modalidades técnicas para introdução da pasta de hidróxido de cálcio no preenchimento do canal radicular. Rev Endod Pesq Ensino , v.6, jul./dez, 2007.

2.Chong MS, Bajwa ZH. Diagnosis and treatment of neurophatic pain. J pain Symptom manage, v.25,n.5,supplement, p. s4-s11,Maio 2003.

3.Macdonald AD, Woolfe G, Bergel F, Morrisin AL, RInderknecht H. Analgesic actin of pethidne and related compounds. British Journal of Pharmacology, v.1, n.1, p.4-14, Março 1946.

4.Okeson JP, Falace DA. Nonodontogenic toothache. Dent. Clin. North Am ,1997; 41: 367-383.

5.Epstein JB, Marcoe JH. Topical application of capsaicin for treatment of oral neuropathic pain and trigeminal neuralgia. Oral Surg Oral Med Oral Pathol ,v.77,n.2,p.135-140,Fevereiro 1994.

6.Finnerup NB, Sindrup SH, Jensen TS. Recent advances in pharmacological treatment of neuropathic pain. Medicine Reports, v.2,p.52-54,Julho 2010.

7.Mason L et al. Systematic review of topical capsaicin for the treatment of chronic pain. BMJ, v.328,p.991–995,Março 2004.

8.Matwychuk MJ. Diagnostic challenges of neuropathic tooth pain. J Can Dent Assoc, v.70,n.8,p.542-546,Setembro 2004.

9.Graff-Radford SB, Solberg WK. Is atypical odontalgia a Psychological problem? Oral Surg Oral Med Oral Pathol, v.75,n.5,p.579-582,Maio 1993.

10.Baad-Hansen L. Atypical odontalgia – pathophysiology and clinical management .J Oral Rehabil , v.35,n.1,p.1–11,Janeiro 2008.

11.Ram S et al. Clinical Characteristics and Diagnosis of Atypical Odontalgia: Implications for Dentists. J Am Dent Assoc, v.140,n.2,p.223-228,Feveiro 2009.

12.Oshima K et al. Clinical Investigation of Patients Who Develop Neuropathic Tooth Pain After Endodontic Procedures. J Endod, v.35,n.7,p.958-961,Julho 2009.

13.List T et al. Effect of local anesthesia on atypical odontalgia – A randomized controlled trial. Pain, v.122,n.3,p.306–314,Junho 2006.

14.Berge TI et al. Incidence of chronic neuropathic pain subsequent to surgical removal of impacted third molars. Acta Odontol Scand, v.60,n.2,p.108–112, 2002

15.Okeson JP. Dor orofacial: guia para avaliação, diagnóstico e tratamento. Editado por Jeffrey P. Okeson. 1º Ed. São Paulo: Quintessence, 1998.

16.List T et al. Clinical Findings and Psychosocial Factors in Patients with Atypical Odontalgia: A Case-Control Study. J Orofac Pain, 2007; v.21,n.2,p.89–98, 2007

17.Woda A, Pionchon P. A Unified Concept of Idiopathic Orofacial Pain:Pathophysiologic Features. J Orofac Pain, v.14,n.3,p.196-212,summer 2000.

18.Baad-Hansen L et al. Increased Pain Sensitivity to Intraoral Capsaicin in Patients with Atypical Odontalgia. J Orofac Pain ,v.20,n.2,p.107-114, 2006.

19.Lilly JP, Law AS. Atypical Odontalgia Misdiagnosed as Odontogenic Pain:A case report and Discussion of treatment. J Endod, v.23, n.5,p.337-339, Maio 1997.

20.March LM, Bagga H. Epidemiology of osteoarthritis in Australia. Med J Australia, v.180,supplement 5, p.s6-s10,Maio 2004.

21.Woolf AD, Pfleger B. Burden of major musculoskeletal conditions. Bull world Health Organ, v.8, n.9, p.646-656, Setembro 2003.

22.Murray CJL, Lopez AD. "The global burden of disease". A comprehensive assessment of mortality and disability from diseases, injuries and risk factors in 1990 and projected to 2020. Cambridge (MA): Harvard School of Public Health on behalf of the World Health Organization and the World Bank, 1996.

23.Kreisberg MK. Atypical Odontalgia: Differencial Diagnosis and treatment. J Am Dent Assoc, v.104,n.6,p.852-854, Junho 1982.

24.Brooke RI et al. Atypical odontalgia. A report of twenty-two cases. Oral Surg Oral Med Oral Pathol, v.49,n.3,p.196-199,1980.

25.Marbach JJ. Is phantom tooth pain a deafferentation (neuropathic) syndrome? Part I: Evidence derived from pathophysiology and treatment. Oral Surg Oral Med Oral Pathol, v.75,n.1,p.95-105, Janeiro 1993.

26.Marino R, Torretta R, Capaccio P, Pignataro L, Spadari F. Different therapeutic strategies for burning mouth syndrome: preliminary data. J Oral Pathol Med, v.39,n.8,p.611–616,Setembro 2010.

27.Philip A, Thakur R. Postherpetic Neuralgia. J Palliat Med, v.14,n.6,p.765-773, Junho 2011.

28.Woolf AD, Pfleger B. Burden of major musculoskeletal conditions. Bull world Health Organ, v.81,n.9,p.646-656,Setembro 2003.

29.Siqueira JTT de et al. Clinical Study of Patients with Persistent Orofacial Pain. Arq Neuropsiquiatr, v.62,n.4,p.988-996,2004.

30.Toblin RL et al. A population-based survey of chronic pain and its treatment with prescription drugs. Pain, v.152,p.1249-1255, Março 2011.

31.Hautkappe M et al. Review of the effectiveness of capsaicin for painful cutaneous disorders and neural dysfunction. Clin Journ of Pain, v.14,n.2,p.97-106, 1998.

32.Agarwal P et al. Capsaicin-fighting fire with fire. Indian Acad Oral Med Radiol, v.21,n.2,p.51-54,Abril/Junho 2009.

33.Szallasi A, Blumberg PM. Vanilloid (Capsaicin) Receptors and Mechanisms. Pharmacol Rev, v.51,n.2,p.160-202,Junho 1999.

34.Spears R, Hutchins B, Hinton RJ. Capsaicin Application to the Temporomandibular Joint Alters Calcitonin Gene-Related Peptide Levels in the Trigeminal Ganglion of the Rat. J Orofac Pain, v.12,n.2,p.108-115,Spring 1998.

35.Lee YS et al. Influence of topical capsaicin on facial sensitivity in response to experimental pain. J Oral Rehabil, v.34,n.1,p.9–14,Janeiro 2007

36.Brunton LL, Lazo JS, Parker KL, editors. Goodman and Gilman's. The Pharmacological Basis of Therapeutics. 11th ed. New York, NY: McGraw-Hill 2006

37.Pershing LK et al. Effects of vehicle on the uptake and elimination kinetics of capsaicinoids in human skin in vivo. Toxicol Appl Pharmacol, v.200,n.1,p.73-81,Outubro 2004.

38.Derry S et al. Topical capsaicin for chronic neuropathic pain in adults. Cochrane Database Syst Rev, 2009; 4: 73-93.

39.Altman RD et al. Capsaicin cream 0.025% as monotherapy for osteoarthritis: a double-blind study. Semin Arthritis Rheum,v.23,n.6, supplement 3,p.25-33, Junho 1994.

40.Deal CL, Schnitzer TJ, Lipstein E et al. Treatment of arthritis with topical capsaicin: a double blind trial. Clin Ther,v.13,n.3,p.383-395, Maio/Junho 1991.

41.Spruce MC, Potter J, Coppini DV. The pathogenesis and management of painful diabetic neuropathy: a review. Diabet Med, v.20,n.2,p.88-98,Fevereiro 2003.

42.Silva De V et al. Evidence for the efficacy of complementary and alternative medicines in the management of osteoarthritis: a systematic review. Rheumatology, v.50,n.5,p.911-920,Junho 2011.

43.Gemmell HA, Jacobson BH, Hayes BM. Effect of a topical herbal cream on osteoarthritis of the hand and knee: a pilot study. J Manipulative Physiol Ther v.26,n.5,p.315-323, Junho 2003.

44.McCleane G. The analgesic efficacy of topical capsaicin is enhanced by glyceryl trinitrate in painful osteoarthritis: a randomized, double blind, placebo controlled study. Eur J Pain, v.4,n.4,p.355-60,2000.

45.McCarthy GM, McCarty DJ. Effect of topical capsaicin in the therapy of painful osteoarthritis of the hands. J Rhematol, v.19,n.4,p.604-607, 1992.

46.Hargreaves KM, Jackson DL, Bowles WR. Adrenergic Regulation of Capsaicin-sensitive Neurons in Dental Pulp. J Endod, v.29,n.6,p.397-399, Junho 2003.

NAIR NARUMI ORITA PAVAN
Av: Dom Manoel da Silveira D'elboux, nº 1149
Zona 5
Maringá- Paraná- Brasil
Telefones: (44) 3262-0773 / (44) 9973- 3415
narumiopavan@gmail.com
narumiopavan@wnet.com.br

CAPSAICIN AN EVIDENCE FOR AN ATYPICAL TOOTHACHE

ABSTRACT

Introduction: Atypical odontalgia (AO) is an orofacial neuropathic pain that affects thousands of people, applied to a tooth or tooth socket region, in the absence of any identifiable dental cause. It is a chronic condition, difficult to diagnose and is often treated wrongly. Materials and methods: We conducted a literature review regarding clinical features, diagnosis and treatment for AO with capsaicin. Discussion: The atypical toothache pain is constant, with characteristics of burning, stinging or pressure, no local presence of pathologies. The diagnosis is difficult because it is performed by exclusion. Capsaicin, which is the active component of chili peppers, is already used in treatments for other types of chronic pain as well as in the oral mucosa. Conclusion: The use of topical capsaicin is effective and should be considered for the treatment of AO, but they have side effects that may limit its use

KEYWORDS: capsaicin, orofacial pain, toothache atypical

PREUVE D'UNE CAPSAÏCINE MAL AUX DENTS ATYPIQUE

SOMMAIRE

Introduction:Le mal de dents atypique est une douleur orofaciale neuropathique qui affecte des milliers de personnes, appliqué à une dent ou une région de l'alvéole en l'absence de toutecause identifiable dentaire. Il s'agit d'une maladie chronique difficile à diagnostiquer et est souvent traité à tort. Matériel et méthodes: Nous avons effectué une revue de la littérature concernant lescaractéristiques cliniques, le diagnostic et le traitement par la capsaïcine. La discussion: Les maux de dents atypique est constante, avec des caractéristiques de brûlure, de picotement ou de pression, pas de présence locale de pathologies. Le diagnostic est difficile car elle est réalisée par l'exclusion. Conclusion: L'utilisation de capsaïcine sont efficaces et devraient être considérés pour le traitement de l'arthrose, mais a des effets secondaires qui peuventlimiter son utilisation.

MOTS-CLES: la capsaïcine, la douleur orofaciale, mal de dents atypique

CAPSAICINA UNA EVIDENCIA PARA DOLORES DE MUELAS ATÍPICOS

RESUMEN

Introducción: La dolor de muelas atípicos es un dolor oro facial neuropático que afecta a millones de personas, que ocurre en un diente o una región del alvéolo dental, en la ausencia de cualquier causa dentaria de identificación. Es una condición crónica de difícil diagnostico y muchas veces es tratada de una manera equivocada.Materiales y métodos: Se realizó un levantamiento bibliográfico cuanto las características clínicas, diagnósticos y tratamiento con capsaicina de la dolor de muelas atípicos Discusión: El dolor por muelas atípica es constante, con características de quemazón, con picor o presión, sin la

presencia de las patologías locales. Su diagnostico es difícil por ser realizado por exclusión. La capsaicina, que es el compuesto activo de las pimientas, ya es utilizada en tratamientos para otros tipos de dolor crónico así como la mucosa bucal. Conclusión: El uso de la capsaicina tópica es eficaz y debe considerarse para el tratamiento de la dolor de muelas atípicos, pero posee efectos colaterales que pueden limitar su utilización.

PALABRAS CLAVE: la capsaicina, dolores oro faciales, el dolor de muelas atípicos

CAPSAICINA UMA EVIDÊNCIA PARA ODONTALGIAS ATÍPICAS

RESUMO

Introdução: A odontalgia atípica (OA) é uma dor neuropática orofacial que atinge milhares de pessoas, aplicado em um dente ou região do alvéolo dentário, na ausência de qualquer causa dentária identificável. É uma condição crônica de difícil diagnostico e muitas vezes é tratada de forma errada. Materiais e métodos: Realizou-se um levantamento bibliográfico quanto às características clínicas, diagnóstico e tratamento com capsaicina da OA. Discussão: A dor por odontalgia atípica é constante, com características de queimação, ardência ou pressão, sem presença de patologias locais. O seu diagnóstico é difícil por ser realizado por exclusão. A capsaicina, que é o composto ativo das pimentas, já é utilizada em tratamentos para outros tipos de dor crônica assim como na mucosa bucal. Conclusão: O uso da capsaicina tópica é eficaz e deve ser considerada para o tratamento da OA, mas possuem efeitos colaterais que podem limitar a sua utilização.

PALAVRAS-CHAVE: capsaicina, dor orofacial, odontalgia atípica