

Allodynia in cluster headache: a review

Alodinia na cefaleia em salvas: uma revisão

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Allodynia in cluster headache: a review. Headache Medicine. 2011;2(1):33-35

ABSTRACT

Allodynia is defined as the experience of pain due to non-painful stimuli, and occurs in several clinical contexts, including primary headaches. Cluster headache is a primary cephalalgia which is more common in males, characterized by excruciating pain, and autonomic trigeminal dysfunction. The prevalence of allodynia in cluster headache patients is a relevant matter with few studies devoted to. Thus, the need for more information demanded a review of most important studies to value the amount of data and its relevance. To bring light to this yet blurry matter, it was made a review using the terms "allodynia" and "cluster headache" through the CAPES periodicals, accessing the most relevant studies regarding to this association.

Keywords: Allodynia; Cluster headache

RESUMO

Alodinia é definida como a experiência de dor por estímulos não dolorosos, e ocorre em vários contextos clínicos, incluindo aquele das cefaleias primárias. A cefaleia em salvas é uma cefalalgia primária que é mais comum em homens, caracterizada por dor excruciante e disfunção autonômica. A prevalência da alodinia em pacientes com cefaleia em salvas é um assunto relevante ao qual há poucos estudos devotados. Assim, a necessidade de mais informação demandou a revisão dos mais relevantes estudos, para estabelecer o valor da quantidade de dados e sua relevância. Para trazer luz a este ainda nebuloso assunto, foi feita uma revisão usando os termos "alodinia" e "cefaleia em salvas" através dos periódicos CAPES, abordando os estudos mais relevantes relativos a esta associação.

Descritores: Alodinia; cefaleia em salvas

INTRODUCTION

Cluster headache (CH) is defined as the primary cephalalgia which lasts 15 to 180 minutes, sited around the orbit (periorbital, temporal and in frontal areas), usually afflicting the same side of the head cluster after cluster, obsessively, with autonomic trigeminal dysfunction (tearing, conjunctival injection, rhinorrhea, localized sweating, eyelid edema, and ptosis). These symptoms and signs occur commonly up to eight times a day. In episodic forms of CH the patients may experience periods of weeks, months or even years without symptoms. The clusters recur periodically, usually on the same season, or yet at the same time of day. These characteristics are gathered by the classification proposed by the International Headache Society.⁽¹⁾

Allodynia is the phenomenon which the subject feels pain due to non-painful stimulus.⁽²⁾ Thus, it is possible that the descending pain modulating paths are involved, as the hypothalamus, trigeminal paths and autonomic structures. According to several authors, the prevalence of allodynia in CH patients is still a theme for debate. A particular study shows a relevant prevalence, up to 49%, and others consider this association a rare entity.⁽³⁾

METHODOLOGY

To bring light to this yet blurry matter, a review was made using the terms "allodynia" and "cluster headache"

through the CAPES periodics, accessing the most relevant studies regarding to this association. The scrutiny used in this review developed a methodological assessment as follows: 1 – to observe the number of patients involved in each of the studies; 2 – to analyze the method of allodynia detection ; 3 – to describe the skin areas put to test; 4 – to analyze the gender distribution of patients for each study; 5 – to describe the type of cluster headache (episodic or chronic) in each study; 6 – to describe the mean duration of disease; 7 – to analyze the prevalence results.

REVIEW

This primary headache also might be divided in two major subtypes: episodic CH and chronic CH. The criteria for this separation are well established, and when the attacks occur for more than one year without remission, or with remissions that last less than 14 days, then it fulfills the features for the chronic form. Otherwise, when the remissions last 14 days or more, and the attacks last seven days to one year, it is defined as the episodic form.⁽¹⁾

In addition to these major subtypes, there is another subdivision applied to the chronic cluster headache, which defines the ones having a temporal pattern typical of chronic forms since the onset as chronic CH unremitting form. And the others that evolve from an initial episodic pattern into the chronic features are named secondary chronic forms. There is also the CH which has a chronic pattern by the onset, and then evolves into an episodic one, namely secondary episodic pattern, even though it is the rarest form, it seems relevant to mention.⁽⁴⁾

Concerning to the clinical characteristics of this primary headache, it is imperative to mention that unlikely most headaches, CH are far more common in males. There are studies from 1979 and 1982 describing a ratio of 5 to 1, and even 9 to 1 men to female.^(5,6) In more recent works the authors describe a decline in this male to female preponderance, with ratios of 2.4:1 and 3.2:1 male to female in chronic CH in episodic forms and chronic CH in unremitting forms, respectively.⁽⁷⁾

Regarding to treatment, it is also necessary to fractionate into abortive and prophylactic treatment. In acute situations the abortive methods encompass the oxygen inhalation at 100%, the use of subcutaneous sumatriptan, dihydroergotamine in injectable and intranasal forms, intranasal lidocaine, and as a resource for oral treatment it has been mentioned the zolmitriptan. The prophylaxis commonly involves verapamil as the main alternative, and other drugs as lithium carbonate,

methysergide, valproic acid, topiramate, melatonin, capsaicin, indometacin, prednisone, gabapentin and some antipsychotic drugs, namely olanzapin and clorpromazin. Other studies, small and open-labeled ones, mention methylphenidate, tizanidine, histamine, somatostatin and pizotifen.⁽⁴⁾

It is worth to point out, related to therapeutics, a case of a 32 years old pregnant woman, who suffered from CH, and whose response to oxygen treatment was none, who had a relief with intranasal lidocaine. As lidocaine has minimal risk for the pregnant woman and fetus, due to its low toxicity, it may be useful as a primary step in acute treatment for CH pregnant patients.⁽⁸⁾ And there is also a case report describing remission of refractory chronic CH after warfarin administration.⁽⁹⁾

RELATIONS AMONG ALLODYNIA AND CLUSTER HEADACHE

Regarding to the number of patients involved in each of the main studies, accessing the association between allodynia and CH, it is remarkable that there is no study with a great number of patients. It is understandable when one considers the low prevalence of cluster headache in general population, affecting 0.01% to 0.9% of general population, and representing 8% to 10% of headache patients.^(10,11) The number of patients with CH tested for allodynia in all studies analyzed vary from as few as two⁽¹²⁾ to as much as 41.⁽³⁾

Considering the method of allodynia detection, one study used a pin prick testing in two patients.⁽¹²⁾ Another study by Ashkenazi et al. used a test for brush allodynia (BA) in ten male patients, which was performed using a 4 x 4 - inch gauze pad, applied repetitively at a rate of two per second, to six skin areas bilaterally in trigeminal and cervical distributions [frontal (V1), maxillary (V2), mandibular (V3), posterior neck (C2,C3), shoulder (C5), and inner forearm(C8)].⁽¹³⁾ Ladda et al. used a quantitative sensory test performed in 16 CH patients and ten healthy ones. This method aimed to determine the subjects perception and pain thresholds for thermal (use of thermode) and mechanical (vibrations, pressure pain thresholds, pin prick, von Frey hairs) stimuli.⁽¹⁴⁾ Marmura et al. also used the same test for BA described above.⁽³⁾

The skin areas put to test by Ladda et al. were the right and left cheeks and the back of right and left hands.⁽¹⁴⁾ Marmura et al., nevertheless, tested the forehead (V1), posterior neck (C2/C3) and inner forearm (C8) on

both sides.⁽³⁾ Ashkenazi et al. approached six skin areas bilaterally in trigeminal and cervical distributions [frontal (V1), maxillary (V2), mandibular (V3), posterior neck (C2,C3), shoulder (C5), and inner forearm (C8)].⁽¹³⁾ In one study, a series of cases, Riederer et al. did not mention the skin areas put to test.⁽¹²⁾

When an analysis approaches the gender distribution through the studies, the males are the majority. Marmura et al. encompass 22 males and 19 females in the study.⁽³⁾ Ashkenazi et al. interestingly includes 10 males and no females.⁽¹³⁾ In the study by Riederer et al. males and females comprise equal parts, but this particular study presents only one man and one woman, making any assumptions regarding gender unreliable.⁽¹²⁾

Taking into account the types of CH, whether episodic or chronic, the literature includes a short series of cases with two episodic cluster headache (ECH) patients.⁽¹⁴⁾ Another study made by Ashkenazi et al. included seven ECH and three chronic cluster headache (CCH) patients.⁽¹³⁾ And Marmura et al. describes 22 CCH and 19 ECH patients.⁽³⁾ The study made by Ladda et al. comprises 8 CCH and 8 ECH patients.⁽¹⁴⁾

Moving towards the mean duration of disease, Marmura et al. described a 14.1 years duration (12.3 for CCH group and 15.7 for ECH group), Ashkenazi et al. reports a duration from 18 months to 38 years.^(3,13) Riederer et al. in his series contemplates one patient with a 13 year history of ECH and another patient with a 20 years history also of ECH.⁽¹²⁾

As a final regard, the prevalence of allodynia in CH patients according to Marmura et al. was 49%; and 40% (28.6% for ECH patients, and 66.7% for CCH patients) according to Ashkenazi et al.^(3,13) Although reporting allodynia during the attacks, both patients included by Riederer et al. tested negative for allodynia.⁽¹²⁾ Ladda et al. found no allodynia in three patients examined during the attacks, but a significant difference in pain thresholds.⁽¹⁴⁾

CONCLUSION

Cluster Headache patients do not represent an insignificant part of all headache patients, and thus this clinical entity cannot go on being considered as a worthless rare headache. The few authors devoted to this relevant matter are mentioned repeatedly, making it evident the need for more research and interest. The prevalence of allodynia in CH is a theme which was neglected until recent times, and the small number of studies demands more attention, and finally more prevalence studies.

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