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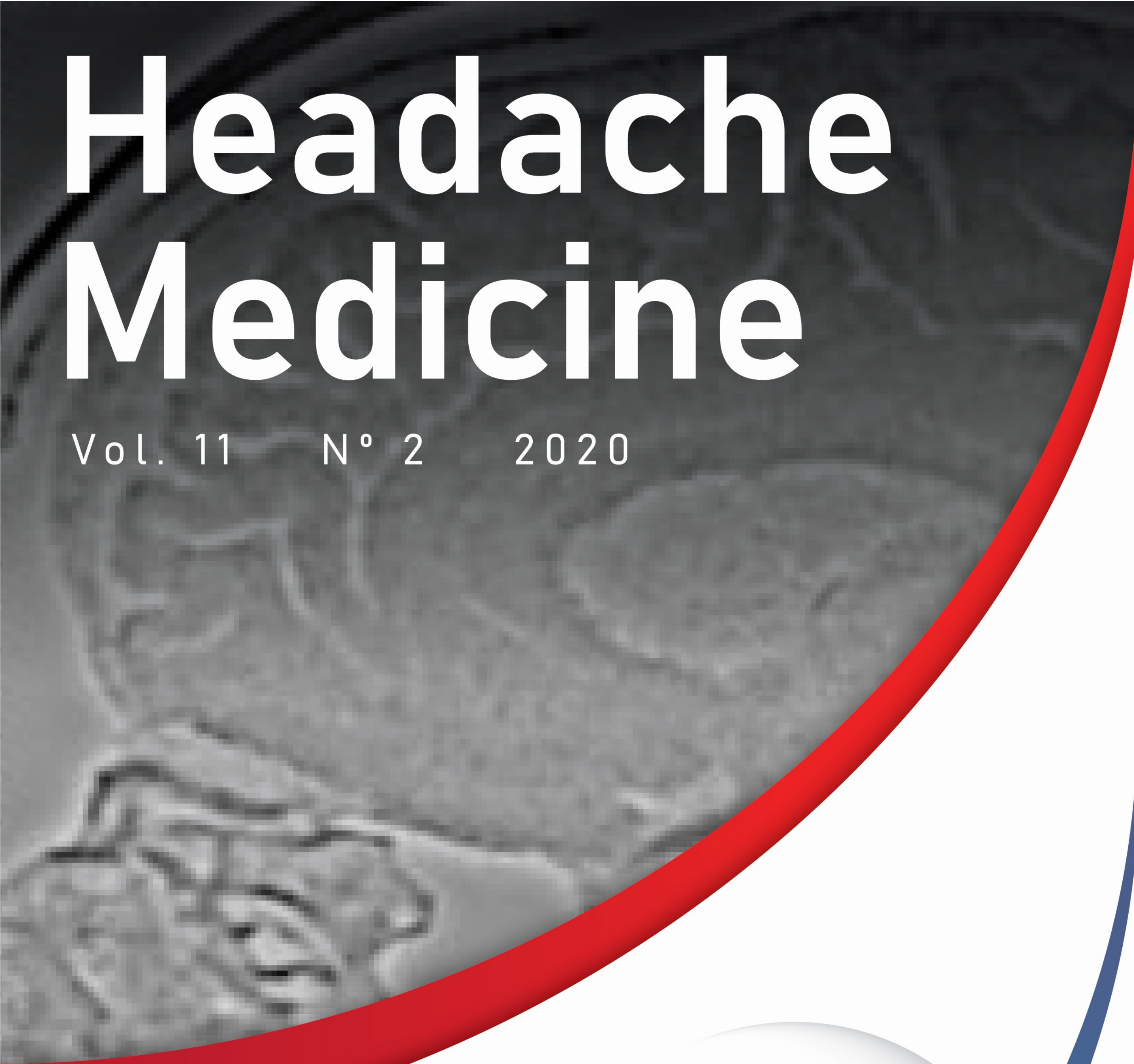

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Contents

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CONSELHO EDITORIAL

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Editorial

The new pathways of orofacial pain: the just released "International Classification of Orofacial Pain" - First edition (ICOP)

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Edited by
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After the extraction of a third molar tooth, and after the normal healing period, Mrs. Maria started to experience constant, burning, and sometimes electric shock-like pain at the surgery site. She was treated by several professionals that offered different treatment options, including surgical procedures, the use of various painkillers, as well as psychological support. However, none of the approaches was able to ease her suffering. Only after many tentative during several months she got an accurate diagnosis and adequate therapy. This trajectory brought her anxiety, suffering, and loss of quality of life. Unfortunately, cases like Mrs. Maria's are not rare in Dentistry, and perhaps symbolize the same scenario of headache patients 30 years ago, before the establishment of validated diagnostic criteria.[1]

Chronic Orofacial Pain (OFP) comprises a diverse group of extraoral and intraoral painful manifestations that may include dental pain, muscle, and articular (temporomandibular joint - TMJ) pain, as well as posttraumatic neuralgias, which are difficult to diagnose and control. Beyond the potential negative impact on patients' quality of life, these conditions are also frequently associated with other comorbidities, such as primary headache, fibromyalgia, neck pain, and others.[2,3,4]

As illustrated in the case above mentioned, dentists daily deal with critical challenges and difficulties in the recognition and diagnosis of such conditions. Such problems are often shared with other health professionals, such as physicians, psychologists and physical therapists, who may be involved in the care of patients with such conditions. These facts perhaps are related to the complexity of the Trigeminal System, which is composed of three nerve branches, sharing neural pathways with many other cranial and cervical nerves.[5] Another critical problem is the absence of a worldwide accepted and comprehensive classification able to reflect in appropriate and evidence-based management strategies. An unrecognized and unclassified condition cannot be treated!

An inherent characteristic of human beings is the tendency to group objects or creatures with similar characteristics. Primitive man, for example, already divided living beings into two groups: edible and inedible. In other words, classifying and differentiating is part of the evolution of the human race.

Some classification systems consider the OFP conditions, such as the "International Classification of Headaches Disorders" (ICHD)[6], and the "Diagnostic Criteria for Temporomandibular Disorders" (DC/DTM).[7] However, none of them encompass, in an organized and hierarchical manner, all possible painful manifestations of the face and oral cavity.

Thus, a joint initiative was launched with the participation of several entities, such as the Special Interest Group in Orofacial Pain and Headache (SIG-OFHP) of the IASP (International Association for the Study of Pain), the International Network for Orofacial Pain & Related disorders Methodology (INfORM) of the IADR (International Association for Dental Research), the American Academy of Orofacial Pain (AAOP) and the International Headache Society (IHS). Accordingly, several professionals, including dentists, neurologists, and psychologists, worked together during a few years to propose a new classification system that would be helpful in the practice of all health professionals. Thereby, the "International Classification of Orofacial Pain" -version 1.0 Beta, has emerged.[8]

This document represents a significant improvement for all professionals involved in the diagnosis and treatment of OFP and associated morbidities. It aims to increase the integration among all these specialists in research and clinical settings, hospitals, and other health services. It also must be incorporated into ICD-11, representing the recognition of chronic orofacial pain as a public health problem to be considered and controlled.

ICOP has a format already established by neurology through ICHD and embraces the pain from dental and associated structures, which are the most prevalent types of OFP and are not considered in the other classification systems. It also includes the Temporomandibular Disorders (TMD), based on the well-known DC/TMD, besides the disorders involving injuries of the cranial nerves, facial manifestations similar to the primary headaches, as well as facial and oral idiopathic pain.

It is well known that some primary headaches may include facial manifestations during the pain phase. However, some of them may manifest exclusively in the face, and sometimes, in the teeth.[9] Although rare, such conditions represent a major challenge for all of us. They are also listed in the new ICOP, which may improve our research opportunities, understanding leading to a more scientific clinical practice.

As aforementioned, there are many similarities, interests, and intersections between Dentistry, Neurology, Psychology, and other areas regarding the recognition and integrated treatment of patients with OFP and chronic headaches. The kickoff for the ICOP translation into Portuguese has already been given, and we hope to make it available soon. Thus, we invite everyone to use, interact, and discuss these new pathways of the OFP. Our patients who has endlessly and desperately looking for proper diagnosis and treatments to alleviate their suering will be the most benefited and thankful. And perhaps, cases like Mrs. Maria's may become increasingly rare...

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Clinical Correspondence

Management of chronic orofacial pain in pandemic of COVID-19

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COVID-19 whose etiological factor is the SARS-CoV-2,is a new disease that plagues humanity and brings with it a real threat to physical integrity and profound repercussions on the individual's mental health, especially in the face of doubts and uncertainties of the future.[1]

Global governments are adopting social detachment and isolation as measures in order to mitigate this pandemic. This tactic has revealed an exacerbation of important psychiatric disorders, such as: anxiety,depression and phobias to the most vulnerable groups.[2]

The impact of these protective measures were studied by Wang et al and coworkers[3] during the initial phase of the COVID-19 outbreak in China, and revealed that 53.8% of respondents rated the psychological impact of the outbreak as moderate or severe; 16.5% reported moderate to severe depressive symptoms; 28.8% reported moderate to severe anxiety symptoms; and 8.1% reported moderate to severe stress levels.[3]

It is already known that there is a bidirectional relationship between chronic orofacial pain and psychosocial conditions and/or psychiatric disorders, forming a two-way street, where neural markers for fear and anxiety show the existence of an exacerbation process of painful symptoms[4], being itself social isolation and mitigation methods the possible catalysts of pain events.

It is estimated that chronic orofacial pain (COP) affects 7% of the population[4], a vulnerable group that is in social confinement and at the mercy of television news and social media that evoke fear and chaos in the face of the unknown.

The Brazilian government, after the World Health Organization (WHO) decreed a pandemic by COVID-19, considered that only activities called urgency/emergency should be attended to, and this caused all elective appointments to be canceled.

Most of the patients with COP who were seen on an outpatient basis at the Chronic Pain Services (CPS) were considered non-urgent. Thus, in the face of this pandemic scenario, it is important to note that care for patients with chronic pain is extremely relevant to the individual's quality and well-being, in addition to the fact that a large part of this group presents psychosocial changes as comorbidities in which the possible interruption pharmacological treatment can exacerbate such problems.

In order to assist the patient with COP in a complete and safe way, we encourage the use of telemedicine and online prescriptions with digital certification, and face-to-face assistance in selected urgent cases is recommended.

We consider this moment, that humanity is passing through, unique and with a great opportunity to implement and execute new clinical care tools, developing interpersonal and virtual skills.

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Clinical Correspondence

Vessel wall imaging for diagnosis and follow-up of basilar artery reversible cerebral vasoconstriction syndrome (RCVS)

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Keywords:
Vasoconstriction
Magnetic Resonance Imaging
Vascular Headaches

Abstract

Reversible Cerebral Vasoconstriction Syndrome (RCVS) is a clinical and radiological syndrome that is primarily defined by thunderclap headache, with or without further neurological deficits, and segmental intracranial vasoconstriction that resolves within three months. The current nomenclature was only established in 2007, but it has been known with diferent names for over fifty years. The pathophysiology, while still not completely understood, seems to point towards a disease based on abnormalities of vascular tonus without structural inflammation. It is clear, however, that patients with RCVS often have triggers, especially drugs or other vasoactive substances. Distinguishing this entity from others, especially subarachnoid hemorrhage and arterial dissection, is extremely important, given the particular prognosis and need of immediate treatment of each disease. The preferred imaging method has long been the angiography; however, new magnetic resonance imaging (MRI) such as vessel wall imaging have allowed for non-invasive diagnosis and follow-up. The authors report a case in which MRI was used in a patient with basilar artery RCVS and present a literature review.

Received: April 2, 2020.
Accepted: April 27, 2020.

Introduction

Reversible Cerebral Vasoconstriction Syndrome (RCVS) is a clinical and radiological nosologic entity that is primarily defined by hyperacute onset of thunderclap headache and segmental intracranial vasoconstriction that resolves within three months, with or without further neurological deficits[1]. Though digital subtraction angiography has long been the standard work-up exam, the role of magnetic resonance imaging, particularly after the refinement of vessel wall imaging, has substantially expanded[2,3].

Case Report

The authors present the case of a 31 years-old Caucasian female with no previous history of headache, who presented to the ER due to a sudden, thunderclap occipital headache while performing strenuous physical activity (cross-fit). No other neurological symptoms or deficits took place. She underwent an arterial angiotomography which suggested vascular lumen reduction of the basilar artery. Her laboratory work-up showed no noteworthy alteration. Afterwards, she underwent brain MRI with vessel wall imaging on a 3-Tesla machine, which confirmed a stenosis inferior to 50% on the middle section of the basilar artery along with gadolinium enhancement towards the vertebro-basilar junction (Figure 1). Her headache receded without need for medication and she was released for outpatient follow-up. After three months without any symptom, another brain MRI with vessel wall imaging on the same machine was performed, showing near complete resolution of the stenosis, as well no further enhancement on the basilar artery after gadolinium injection (Figure 2). On the same outpatient visit, the patient reported regular use of a performance enhancement compound including caffeine and bupropion.

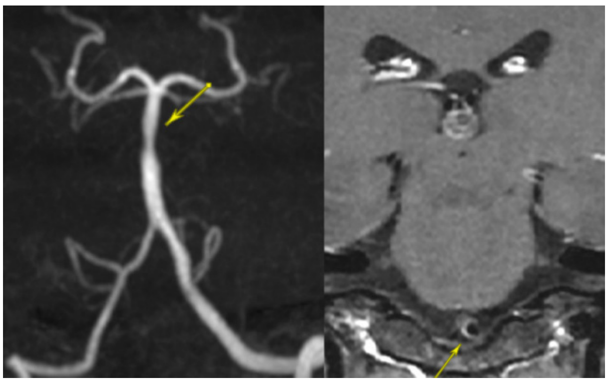
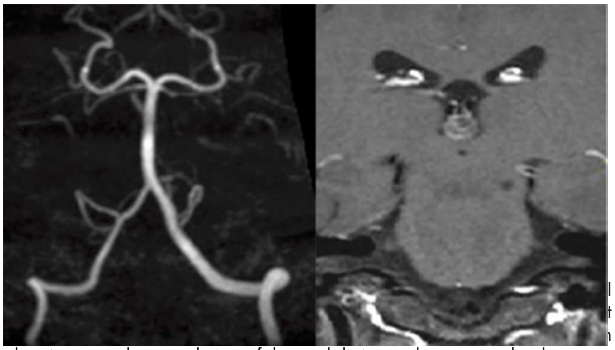


Figure 1. Left - coronal view of reconstruction of arterial angioMRI on a 3 Tesla magnet confirming stenosis of the middle third of the basilar artery (arrow); right - coronal slice of vessel wall imaging after gadolinium injection, with impregnation of the basilar artery near the vertebro-basilar junction (arrow).



showing complete resolution of the gadolinium enhancement by the vertebro-basilar junction.

Discussion

Though this nosologic entity was first reported over fifty years ago, its most consistent description came in 1988 by Call and Fleming[4]; Calabrese proposed the current nomenclature in 2007 and established formal diagnostic criteria, thus unifying the many "diseases" with similar clinical and radiologic features under a single term.[5] No precise data on incidence is currently available, though it doesn't appear to be particularly rare[6]. The pathophysiology remains a mystery, although alteration on vascular tone leading to vasoconstriction seems to be the main mechanism[1], which is supported by the lack of vascular or perivascular histological abnormalities on biopsy of brain tissue. The role of sympathomimetic vasoactive substances is well known, with caffeine and bupropion having been previously recognized as triggers[7,8]. The differential diagnosis includes subarachnoid hemorrhage, cervical arterial dissection, and primary angiitis of the central nervous system; as such, correct differentiation between these entities is of paramount importance, given the different mechanisms and treatments. In terms of prognosis, the disease is monophasic and typically self-limiting, with the criteria establishing resolution within three months.

Conclusion

This case illustrates the typical course of the disease and the need to recognize it and differentiate from other vascular diseases of the central nervous system. The use of MRI with vessel wall imaging allows for both accurate diagnosis and follow-up in a non-invasive manner.

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Views and Reviews

Headache in patients with coronavirus disease (Covid-19): An integrative literature review

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Abstract

Introduction
The disease caused by the new coronavirus was named by the acronym COVID-19 which means "COrona VIrus Disease", while "19" refers to the year 2019, when the first cases in Wuhan, China, were identified.

Objective
Our objective was to identify the prevalence of headache and to know its clinical characteristics in COVID-19 patients, available in the literature.

Methods
Based on a literature search in the major medical databases and using the descriptors "headache and coronavirus", "headache and 2019-nCoV", "headache and SARS-CoV-2", "headache and coronavirus and 2019-nCoV" and "headache and coronavirus and SARS-CoV-2" we include articles published between January 2019 and April 2020. We found 94 articles, but only 13 met the inclusion criteria.

Results
In 13 articles analyzed in this review, a total of 3,105 Chinese patients (51.6% men and 48.4% women) had laboratory diagnoses of COVID-19. In 240 (7.7%) patients, headache was an associated symptom of COVID-19, but in only 52 (21.7%) of them there was some information about the characteristics of this headache.

Conclusions
COVID-19 patients have several clinical manifestations, including headache that is nonspecific with a prevalence of 7.7%.

Keywords:
Headache
Coronavirus
SARS virus

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Introduction

The disease caused by the novel coronavirus (2019-nCoV) was named by the acronym COVID-19 which means "COrona VIrus Disease", while "19" refers to the year 2019, when the first cases in Wuhan, China, were identified. The virus that causes this disease, a beta coronavirus, is called SARS-CoV-2 (severe acute respiratory syndrome coronavirus 2) and it is the same virus that causes Severe Acute Respiratory Syndrome (SARS), identified in 2002, and Middle East Respiratory Syndrome (MERS), identified in 2012. Transmission of 2019-nCoV from humans to humans has been confirmed in China and the USA and occurs mainly with the contact of respiratory droplets from infected patients[1].

In December 2019, in China, a novel coronavirus was identified as the cause of a severe acute respiratory syndrome and received worldwide attention. It is a new emerging zoonotic agent that results in a severe syndrome that, in some patients, leads to the need for intensive respiratory treatment with specialized management in intensive care units[2].

In January 2020, the World Health Organization (WHO) declared the outbreak in China as a public health emergency of international interest. In March 2020, with the spread of the virus in different countries, the infection caused by SARS-CoV-2 was considered a pandemic and called COVID-19. In early April, WHO recorded more than 1 million cases of patients infected with SARS-CoV-2 worldwide and more than 65,000 deaths caused by the pandemic worldwide. In Brazil, at the time of writing this manuscript, there are more than 18,000 cases of infection and more than 1,000 deaths[3].

According to a Chinese study, the main clinical symptoms of patients with COVID-19 are fever (88.7%), cough (67.8%), fatigue (38.1%), sputum production (33.4%), dyspnoea (18.6%), sore throat (13.9%) and headache (13.6%). Gastrointestinal symptoms, such as diarrhea (3.8%) and vomiting (5.0%) are less frequent[4]. Elderly and people with underlying diseases are susceptible to infection and more predisposed to severe outcomes, which may be associated with acute respiratory distress syndrome (ARDS) and the cytokine storm[5,6].

Although headache is one of the clinical manifestations of COVID-19, this symptom is still poorly characterized. In this context, our objective was to identify the prevalence of headache and to know its clinical characteristics in a patient with COVID-19, available in the literature.

Methods

This study was an integrative and retrospective review of the articles on headache as a symptom of COVID-19 published in the last 16 months. The research was performed in the online databases *Literatura Latino-Americana e do Caribe em Ciências da Saúde* (LiLacs), Scientific Electronic Library Online (SciELO), Chinese National Knowledge Infrastructure (CNKI) and Medical Literature and Retrivial System on-Line (MEDLINE/PubMed®), from January 2019 to April 2020, given the current status of the pandemic by SARS-Cov-19. We have used the descriptors "headache and coronavirus", "headache and 2019-nCoV", "headache and SARS-CoV-2", "headache and coronavirus and 2019-nCoV" and "headache and coronavirus and SARS-CoV-2".

Articles written in all languages were included. Editorials, comments, letters to the editor, review articles, articles that were not fully available or those that did not have accurate information were excluded. To ensure the validity of these articles, the selected studies were analyzed in detail, by all authors, for the presence of headache in patients with COVID-19.

In our search, we found a total of 94 articles, but with the elimination of repeated articles, only 49 remained. After reading the abstracts, we excluded articles that did not describe headache with associated symptom (36 articles). Only 13 articles describing case series were included and made up this review, totaling 3,105 patients (Figure).

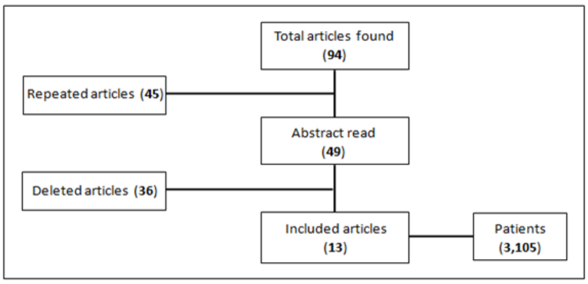

Figure. Flowchart of search and selection of studies

Data were analyzed based on demographic and clinical characteristics and are presented as percentages. The percentage is always related to the total number of patients whose information was available for the specific issue.

Results

In 13 articles analyzed in this review, a total of 3,105 Chinese patients (51.6% men and 48.4% women) had laboratory diagnoses of COVID-19. In 7.7% (240/3,105) patients, headache was an associated symptom of COVID-19, but in only 21.7% (52/240) of them there was some information about the characteristics of this headache, as shown in Table 1.

Discussion

Coronaviruses are a large class of viruses that exist widely in nature and the newly discovered 2019-nCoV is the seventh coronavirus

Table 1. Clinical characteristics of headache in 3,105 patients with coronavirus disease 2019 (Covid-19) in the period from January 2019 to April 2020 in China

Published studies	Number of patients	Age (years)		Sex	Headache prevalence		Clinical characteristics
		Average	Variation		n	%	
Tian et al., 2020[7]	262	47.5	1–94	M=127; F=135	17	6.5	Mild to moderate intensity in 93.5% of patients and it appeared at the beginning of the disease
Xu et.al., 2020[8]	62	41.0	19-65	M=35; F=27	21	34.0	It lasted ≥10 days in 71.4% of patients and it appeared at the beginning of the disease
Huang et. al., 2020[9]	41	49.0	18-65	M=30; F=11	3	7.3	NR
Liu et.al., 2020[10]	30	35.0±8	21-59	M=10; F=20	16	53.3	It appeared at the beginning of the disease
Cheng et.al., 2020[11]	1,078	46.0	0.25-94	M=573; F=505	22	2.0	NR
Wang et.al., 2020[12]	31	7.1	0.5-17	M=15; F=16	3	9.7	NR
Li et.al., 2020[13]	54	51.5	25-82	M=22; F=32	?	Rare	NR
Chen et al., 2020[14]	99	55.5±13.1	21-82	M=67; F=32	8	8.0	NR
Liu et al., 2020[15]	137	55.0±16.0	20-82	M=61; F=76	13	9.5	NR
Mi et al., 2020[16]	10	68.4±18.5	34-87	M=2; F=8	1	10.0	NR
Jin et al., 2020[17]	651	NR	NR	M=331; F=320	67	10.3	It was more frequent in patients with gastrointestinal symptoms (21.6% versus 8.8%)
Ding et al., 2020[18]	5	50.2±9.8	39-66	M=2; F=3	2	40.0	NR
Zhang et al., 2020[19]	645	NR	NR	M=328; F=317	67	10.4	It was more frequent in patients with abnormal pulmonary imaging findings (11.3% versus 2.8%)

Legend: M – male; F – female; NR – not reported.

currently known to infect humans and also responsible for the current pandemic that started in China[20].

To the best of our knowledge, this is the first study to assess headache characteristics in patients with COVID-19. We found that headache was an initial symptom of the disease in 3,105 pacient with this disease. Its prevalence has been reported in most studies, but its semiological characteristics have rarely been addressed.

According to the International Classification of Headache Disorders, 3rd edition (ICHD-3)[21], headache attributed to systemic viral infection is characterized by its temporal relation to onset of viral infection and significant improvement or resolution in parallel with the improvement or resolution of systemic viral infection. Headache is usually diffuse and of moderate to severe intensity (Table 2).

Table 2. Diagnostic criteria of ICHD-3 for headache attributed to systemic viral infection

A.	Headache of any duration fulfilling criterion C
B.	Both of the following:
1.	systemic viral infection has been diagnosed
2.	no evidence of meningitic or encephalitic involvement
C.	Evidence of causation demonstrated by at least two of the following:
1.	headache has developed in temporal relation to onset of the systemic viral infection
2.	headache has significantly worsened in parallel with worsening of the systemic viral infection
3.	headache has significantly improved or resolved in parallel with improvement in or resolution of the systemic viral infection
4.	headache has either or both of the following characteristics:
a.	diffuse pain
b.	moderate or severe intensity
D.	Not better accounted for by another ICHD-3 diagnosis

Possibly, the neuroinvasive predisposition characteristic of coronoviruses is an explanation for patients with COVID-19 to develop headache. Genomic analysis shows that SARS-CoV-2 shares a highly homologous sequence with SARS-CoV-1 and MERS-CoV, in addition to a similarity of receptors in human cells. This can affect the respiratory tract and also the central nervous system, especially the thalamus and brain stem[20].

Headache was observed in patients of all age groups, both in adults[7-13], as in children[6]. It is important to note that headache is a characteristic symptom of pneumonia caused by coronavirus and not exclusive to COVID-19, and does not behave as a differential symptom between these viral infections[13].

In the studied cases of COVID-19, headache was usually associated with other typical symptoms of the disease, such as gastrointestinal symptoms. When the patient experienced nausea, vomiting and diarrhea, headache was more frequent, probably due to the higher fever and hydroelectrolytic imbalance[17].

We found in the 13 studies a prevalence of headache equal to 7.7% (240 out of 3,105 patients), ranging from 2.0% to 53.3%. A factor that may determine a higher prevalence of headache in COVID-19 patients is pneumonia, considered a predictive factor for severe subtypes of the disease. We observed that in patients with changes in pulmonary radiological images there was a higher prevalence of headache when compared to patients with normal exams[19].

The symptoms of COVID-19 are nonspecific, making the initial clinical presentation indistinguishable from other viral respiratory diseases. Initially, there is a predominance of systemic manifestations, such as fever, fatigue, myalgia and asthenia[10]. However, the headache that can also appear at the beginning of the disease should not be neglected, but contribute to the diagnosis, especially in those patients with a positive epidemiological history.

This review had some limitations. All patients were from China, so some articles found were written in Chinese and needed to be translated[10-13]. In addition, as it is pandemic, new studies were published almost daily and described the headache incompletely. However, we believe that these findings are consistent with the clinical manifestations of this disease.

Conclusion

COVID-19 patients have several clinical manifestations, including headache that is nonspecific with a prevalence of 7.7%.

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Original

Main symptoms associated with the catastrophizing in women with fibromyalgia and migraine

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Abstract

Objective
To evaluate the main symptoms associated with catastrophizing in women with fibromyalgia and migraine.

Methods
We conducted an observational study with 26 women diagnosed with both fibromyalgia and migraine, aged between 30 and 60 yrs (46±8 yrs). The Pain Catastrophizing Scale was applied as a cut-off point of 30, dividing the volunteers into groups with (n=18) and without catastrophizing (n=8). We assessed the quality of sleep (Pittsburgh Sleep Quality Index), the presence of depression and anxiety (Beck's Depression and Anxiety Inventories), the quality of life perception (Fibromyalgia Impact Questionnaire-revised), the disability due to migraine (Migraine Disability Assessment), and the level of physical activity (International Physical Activity Questionnaire).

Results
The time of fibromyalgia did not differ (p=0.80) between the group with (8.54±4.88 yrs) and without catastrophizing (10.04±3.47 yrs). The Fibromyalgia Impact Questionnaire-revised scores were significantly higher (p=0.01) among women with catastrophizing (78.0±12.6) than those without (56.6±22.3). There was no difference between the groups (p>0.05) in relation to the other outcomes evaluated.

Conclusion
The presence of catastrophizing in women with fibromyalgia and migraine are associated with a worse perception of quality of life.

Keywords:
Fibromyalgia
Migraine disorders
Catastrophization
Sleep
Depression
Anxiety Disorders
Quality of life
Disability
Exercise

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Introduction

Fibromyalgia is a a broad-spectrum disease that has an average worldwide prevalence of 4.1% in women.[1] Over the years, the classification of fibromyalgia by the American College of Rheumatology has undergone improvements, ceasing to be characterized only by chronic widespread pain and the presence of tender points in anatomically specific regions, known as tender points.[2] Currently the classification takes into account the symptoms associated with this disease.[3,4]

The etiology of fibromyalgia is not yet fully understood, but several factors contribute to its development, including dysfunctions of the central and autonomic nervous system, neuroendocrine disorders, regulation of neurotransmitters, changes in the hypothalamic-pituitary axis, and exposure to stressors.[5,6] Sensory stimuli transmitted to the central nervous system are processed in an altered manner, resulting in generalized pain and changes in the painful threshold.[6,7]

Fibromyalgia presents a complex picture that includes numerous symptoms such as depression, anxiety, headache, cognitive, and sleep disorders and negative impacts on quality of life.[8] In this context, migraine is a relevant symptom and represents the type of headache most found in patients with fibromyalgia, whose prevalence varies between 45% and 80%.[9]

In addition, the cognitive and emotional aspects related to the pain experienced by fibromyalgia patients involve a catastrophizing thought, recognized as a negative state in the face of a painful experience.[10] Depression is part of the factors that interfere with the painful perception of fibromyalgia, but unlike catastrophization, it refers to sadness, discouragement, lack of interest, and unwillingness to perform activities that previously gave you pleasure. In turn, catastrophizing is specifically related to thoughts and feelings linked to the painful situation, such as fear, worry, inability to divert attention, and deal with pain.[11]

There is still a lack of studies in the literature[12–15] evaluating the presence of catastrophization however, it is known that this symptom is related to chronic pain, feelings of incapacity,[12] more severe degrees of depression and anxiety, more migraine attacks,[13] exercise intolerance[14] and sleep disorders[15]. Also, catastrophization can worsen the perception of these symptoms, which are also present in fibromyalgia and migraine, making it necessary to evaluate them to guide the treatment of patients.

Despite the above, the catastrophization of pain has not yet been analyzed in women with associated fibromyalgia and migraine. Thus, the present study aimed to assess the main symptoms associated with catastrophization in women with fibromyalgia and migraine.

Methods

This is an observational, cross-sectional study. The research was carried out from March to November 2015, at the school clinic of the Physiotherapy Department of the Federal University of Pernambuco (UFPE), Recife, Pernambuco, Brazil. The research was approved by the Human Research Ethics Committee of the Health Sciences Center of UFPE (CAAE 37052114.3.0000.5208). All participants signed an informed consent form.

Sample

The participants were recruited from the list of patients seen at the fibromyalgia outpatient clinic of the rheumatology sector at Hospital das Clínicas, UFPE. Patients who met the following inclusion criteria were selected: 1. having a diagnosis of fibromyalgia and migraine, simultaneously; and 2. age between 30 and 60 years. Pregnant women were excluded due to hormonal changes and their relationship with the presence of migraine, and obese participants.

Procedures for data collection

By phone, the participants were invited to participate in the survey and asked about the eligibility criteria. In the initial evaluation, a semi-structured questionnaire was applied to obtain sociodemographic and clinical data. Then, they went through the evaluation of a neurologist who diagnosed the type of headache, based on the criteria of the International Classification of Headache Disorders, 3rd edition - beta version.[16]

The presence of catastrophizing was assessed using the pain catastrophizing scale. This instrument, validated and adapted to Portuguese (Cronbach alpha= 0.91), assesses the thoughts and feelings of the volunteers in the face of pain experience and consists of 13 items, whose score ranges from 0-4, with 52 being the maximum score.[17] The global score of 30 indicates that the individual has clinically relevant levels of catastrophization.[18] The sample was then divided into two groups, one with catastrophization and one without.

Outcome Assessment

The sleep quality outcome was assessed using the Pittsburgh Sleep Quality Index (PSQI), validated and adapted for the Brazilian population, with high reliability (Cronbach a= 0.82). The PSQI has 19 questions ranging from 0-3 and is divided into seven components related to sleep: subjective quality, latency, duration, habitual efficiency, changes and the use of sleep medications, and daytime dysfunction. The total score was given by the sum of all components, reaching a maximum of 21 points.[19]

The depression outcome was assessed by Beck Depression Inventory (BDI), an instrument consisting of 21 multiple-choice questions ranging from 0-3 points, reaching a maximum total score of 63. From the score obtained, the participants were classified as absence (0-9 points), mild depression (10-18 points), moderate (19-29 points), and severe (>30 points). BDI is validated and adapted for the Brazilian population (Cronbach α= 0.81).[20,21] Anxiety was assessed by the Beck Anxiety Inventory (BAI), which is also validated and adapted for the Brazilian population. Composed of 23 multiple-choice questions (ranges from 0-4), the total score was achieved by the sum of all items, reaching a maximum of 63 points, generating the classification: minimal anxiety (0-10 points), mild (11-19 points), moderate (20-30 points) and severe (> 31 points).[22]

The impact of fibromyalgia on the quality of life of the volunteers was measured by Fibromyalgia Impact Questionnaire-Revised (FIQ-R), with validation and adaptation for the Brazilian population (Cronbach's alpha of 0.96). The instrument contains 21 questions that can vary from 0-10, with 100 being the maximum score. The FIQ-R is divided into three domains: function, global impact, and symptom intensity. The final score was given by the sum of these and the higher, the greater the impact of fibromyalgia on quality of life. The level of pain resulting from fibromyalgia was assessed using this questionnaire, which presents a specific scale related to pain, whose domain of symptom intensity varies from zero to ten.[23]

Migraine disability was assessed by the Migraine Disability Assessment Test (MIDAS). From the sum of the scores, the volunteers were classified as minimal disability (0-5 points), mild (6-10 points), moderate (11-20 points), and severe (> 20 points).[24]

The level of physical activity was verified by the International Physical Activity Questionnaire (IPAQ), in its short version. It consists of four questions containing two sub-items that allowed measuring the frequency, duration of activities, intensity during the week, and also the periods of inactivity of the participants. Among the categories provided by IPAQ, it was possible to classify the volunteers as very active, active, irregularly active and sedentary, through data related to the frequency and duration reported by them.[25]

Statistical Analysis

The data were analyzed using the Statistical Package for Social Sciences (SPSS) version 22.0. A descriptive analysis was performed with a calculation of the standard deviation for the averages of the measurement variables and frequency of the other variables that characterize the sample. To test the normality of the variables, the Shapiro-Wilk test was used. The Student t-test was used for variables with normal distribution and the Mann-Whitney test for variables with non-normal distribution. In the analysis of categorical variables, the chi-square test (χ^2) was applied. The level of significance considered was $p<0.05$.

Results

Of the 29 women evaluated, one was excluded for having another type of headache and two for not completing the questionnaires. The general characterization of the sample of the 26 included participants (45.9 ± 7.9 years) and the clinical level of pain catastrophization is shown in Table 1. There was no difference between the groups regarding the time of diagnosis of fibromyalgia.

Table 2 shows the characteristics of the sample in relation to the associated symptoms. The presence of migraines had a serious impact on the daily and professional life of half of the sample. When observing the psychological characteristics of the studied population, it was possible to identify that 76.93% of the volunteers had a degree of depression from mild to moderate and 65.39% reported a moderate to severe degree of anxiety.

Fibromyalgia Impact Questionnaire-Revised scores were significantly higher ($p = 0.01$) among women with catastrophization (78.0 ± 12.6) than those without (56.6 ± 22.3). There was no difference between groups ($p> 0.05$) in relation to the other outcomes assessed (Table 2).

Discussion

In the present study, only the perception of quality of life was associated with the presence of catastrophization in women with fibromyalgia and migraine. Despite the lack of association in relation to the other outcomes studied, the results of our study are of great clinical relevance, as they demonstrate that catastrophization can worsen the perception of function, global impact, and intensity of symptoms in patients with fibromyalgia and migraine, generating negative repercussions in the quality of life of this population. In addition, this is a pioneering study, since the catastrophizing of pain has not yet been analyzed in women with associated fibromyalgia and migraine.

In the present study, more than half of women with fibromyalgia and migraine exhibited clinically relevant levels of pain catastrophization, differing from the results of another study[13], in which only a quarter of the sample, composed of migrant women, presented this symptom. In this way, it is possible that the presence of associated fibromyalgia and migraine, which share similar pathophysiological pathways[7,10], has contributed to greater susceptibility to pain, potentiating changes in central processing and generating greater impact on catastrophizing symptoms.

Another relevant aspect, frequently cited in the literature, is that catastrophization provides a more intense experience of pain in patients with chronic pain.[14] For this reason, women with the presence of associated fibromyalgia and migraine were expected to experience greater pain intensity and changes in pain threshold.[6,7] Despite this, in our study, no great variations were observed in the intensity of pain due to migraine and fibromyalgia.

On the other hand, our study showed that fibromyalgia and migraine women with catastrophization had greater impacts on the perception of quality of life. It is known that both fibromyalgia[8] and migraine[26] promote negative impacts on patients' quality of life. Thus, the association between different disabling clinical conditions could aggravate catastrophizing symptoms, making it difficult for the patient to deal with the painful situation.[11]

It is also often cited that women with fibromyalgia are less physically active than healthy women[27], which could be explained by the fear that fibromyalgia patients have that physical activity could worsen their symptoms.[28] In addition, people with high levels of catastrophization may have worse physical performance[14], probably due to intolerance to pain-related activity.

Another common association is the presence of catastrophization, sleep disorders[15], and more severe degrees of depression and anxiety.[13] Despite the findings, in our study the catastrophizing group did not present lower levels of physical activity and no association was observed with worsening migraine impact, sleep disorders, depression, and anxiety. It is possible that the lack of association between the variables studied in the present research is related to the small sample size.

The results of the present study have some limitations. As it is an observational study, it is not possible to establish cause-and-effect relationships in this research. In addition, the small sample size makes it impossible to perform statistical analysis with multiple linear regression, which would make it possible to verify the influence of dependent variables with catastrophization.

Table 1. Characterization of the sample with and without the clinical level of catastrophization.

Variables	Total sample (n = 26)	Catastrophizing		p*
		With (n=18)	Without (n=8)	
Age (years)	45.92 ± 7.88	47.11 ± 7.79	43.25 ± 7.9	0.17
BMI (Kg/m²)	27.97 ± 4.94	28.09 ± 4.92	27.7 ± 5.32	1.00
Time of medication (years)	3.95 ± 2.52	4.05 ± 2.51	3.62 ± 2.93	0.85
Time diagnosis of fibromyalgia (years)	7.42 ± 8.65	8.54 ± 10.04	4.88 ± 3.47	0.80
Race n(%)				
White	9/26 (34.6)	5/26 (27.7)	4/8 (50)	
Brown	13/26 (50.0)	11/26 (61.1)	2/8 (25)	
Black	4/26 (15.3)	2/18 (11.1)	2/8 (25)	
Marital status n(%)				
Single	11/26 (42.3)	9/18 (50.0)	2/8 (25.0)	
Married	12/26 (46.1)	7/18 (38.8)	5/8 (62.5)	
Divorced	3/26 (11.5)	2/18 (11.1)	1/8 (12.5)	

*Student t-test.
Data are presented as mean ± standard deviation or n (%). BMI – Body Mass Index.

Table 2. Characterization of the sample with and without the clinical level of catastrophization.

Variables	Total sample (n=26)	Catastrophizing (n=18)		p*
		With (n=18)	Without (n=8)	
FIQ-R	71.42 ±18.68	78 ± 12.62	56.63 ± 22.30	0.01
PSQI	13.62 ± 4.36	14.5 ± 4.22	11.63 ± 4.27	0.11
MIDAS n(%)				
Minimal Disability	5/26 (19.3)	4/18 (22.2)	1/8 (12.5)	0.44
Light	3/26 (11.5)	2/18 (11.1)	1/8 (12.5)	
Moderate	5/26 (19.2)	2/18 (11.1)	3/8 (37.5)	
Severe	13/26 (50.0)	10/18 (55.0)	3/8 (37.5)	
BDI n(%)				
Absence (0-9)	1/26 (3.8)	-	1/8 (12.5)	0.19
Light (10-18)	11/26 (42.3)	7/18 (38.8)	4/8 (50.0)	
Moderate (19-29)	9/26 (34.6)	6/18 (33.3)	3/8 (37.7)	
Severe (>30)	5/26 (19.2)	5/18 (27.7)	-	
BAI n(%)				
Minimal (0-10)	6/26 (23.0)	3/18 (16.6)	3/8 (37.5)	0.09
Light (11-19)	3/26 (11.5)	2/18 (11.1)	1/8 (12.5)	
Moderate (20-30)	8/26 (30.7)	4/18 (22.2)	4/8 (50.0)	
Severe (>31)	9/26 (34.6)	9/18 (50.0)	-	
IPAQ n(%)				
Very active	-	-	-	0.11
Active	5/26 (19.2)	2/18 (11.1)	3/8 (37.5)	
Irregularly activa	14/26 (53.8)	12/18 (66.6)	2/8 (25.0)	
Sedentary	7/26 (26.9)	4/18 (22.2)	3/8 (37.5)	

* $\chi 2$ Test.Data are presented as mean ± standard deviation or n=number of patients and (%). FIQ-R – Fibromyalgia Impact Questionnaire-Revised; PSQI – Pittsburgh Sleep Quality Index; MIDAS – Migraine Disability Assessment Test; BDI – Beck Depression Inventory; BAI – Beck Anxiety Inventory; IPAQ – International Physical Activity Questionnaire.

Conclusion

The presence of catastrophization in women with fibromyalgia and migraine is associated with a worsening perception of quality of life.

The authors declare that there is no conflict of interest
Place where the study was conducted: Departamento de Fisioterapia, Laboratório de Aprendizagem e Controle Motor, Universidade Federal de Pernambuco.
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Original

Headache triggered by sleep deprivation: an observational study

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Abstract

Introduction
Sleep deprivation is one of the main triggers of primary headaches, especially in migraine patients.
Objective
To determine the prevalence of headache triggered by sleep deprivation in night workers.
Methods
The study was cross-sectional, observational, non-random and convenience. We interviewed 71 night workers of a public hospital with diagnosis of primary headaches and presence of headache the day after night shift.
Results
The 71 night workers (50 women and 21 men) had a mean age of 36.7±7.7 years, ranging from 22 to 50 years. Of these workers, 83.2% were diagnosed with migraine and 16.9% with tension-type headache (TTH). The number of monthly night shifts was greater than 10, in 50.8% of migraine patients and in 58.3% of those with TTH. It was observed that 91.5% of migraine patients and 83.3% of patients with TTH slept ≥ 6 hours a night when they were at home, but when they were at work, they all slept ≤ 4 hours a night. Headache occurred the following day of night work in 83.1% of migraine patients and in 41.7% of those with TTH ($p=0.005$).
Conclusion
Headache triggered by sleep deprivation was highly prevalent, predominating in migraine patients.

Keywords:
Headache
Sleep
Migraine Disorders
Prevalence

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Introduction

In primary headaches, headache attacks may be triggered by several factors, such as stress, eating habits, sensory stimuli, menstrual changes and sleep deprivation, especially in patients with migraine.[1,2] The prevalence of headache attacks triggered by sleep deprivation in migraine patients ranges from 28.5% to 56.7%[3,4,5] and in patients with tension-type headache (TTH) it is 28.8%[3].

There is a relationship between sleep and primary headaches as a trigger for headache attacks, both deprivation and excess sleep[6], but this mechanism is not fully understood, despite being a frequent complaint of migraine and TTH patients[7]. On the other hand, restorative sleep with sufficient sleep hours works as a relief factor for headache attacks.[8]

Almost half of the population has some sleep disorder, mainly insomnia[9]. Sleep disorders represent an important public health problem in the world and are comorbidities of primary headaches. In contrast, primary headaches have great social impact and risk of chronification.[10,11]

Despite the social impact, headache attacks triggered by sleep deprivation in patients with migraine or TTH have not been sufficiently studied. This is the first Brazilian population study on headache triggered by sleep deprivation.

Patients and methods

Study design and patients

A prospective, cross-sectional, group comparative study was conducted on a non-random and convenience sampling which was selected from night workers of a public hospital and invited to participate in this research. The sample consisted of 71 night workers diagnosed with primary headaches according to the ICHD-3 criteria.[12]

Inclusion and exclusion criteria

The study included night workers of a public hospital, aged 18 to 50 years diagnosed with primary headaches according to the ICHD-3 criteria[12] who agreed to undergo an interview. Those who reported daily or almost daily headache, no headache in the last 12 months, association of two or more primary headaches, concomitantly or at different times, secondary headaches, and pregnant women were excluded.

Data collection

After fulfilling the inclusion and exclusion criteria, a structured interview was conducted, based on a questionnaire to diagnose the presence of headache on the day after night shift. The number of times the worker slept at work and the number of hours he/she slept at home and at work were investigated.

Statistical analysis

Organized the information in a database, the Statistical Package for Social Sciences (SPSS™) version 22.0 was used for statistical analysis. The chi-square test with Yates correction, Student's t-test and Fisher's exact test were used for the difference of means of unpaired samples, with a significance level of 0.05.

Ethical aspects

This study was approved by the Ethics in Research Involving Human Subjects Committee at the Federal University of Piauí, protocol number 3,305,167 and the National Ethics in Research System, registry number 08850918.0.0000.5214, on May 6, 2019. Data were collected from May to June 2019 and all volunteers signed the Informed Consent Form.

Results

Seventy-one night workers, aged 36.7±7.7 years, ranging from 22 to 50 years, were investigated, of which 50 (70.4%) were women, corresponding to the sex ratio of 1:4.9 male/female. After headache diagnosis, it was found that 59 (83.1%) workers had migraine and 12 (16.9%) met the diagnostic criteria for TTH. Migraine affected workers aged 36.0±7.6 years, while in TTH, the age was 35.8±8.8 years (p=0.935) (Table 1).

Table 1. Distribution of sex and age according to diagnosis of 59 migraine patients and 12 with tension-type headache

Variables	Diagnosis	Migraine	TTH
Gender			
Female (n; %)	45 (76.3)	5 (41.7)	0.032*
Male (n; %)	14 (23.7)	7 (58.3)	
Age (years)			
Mean (SD)	36.0 (7.6)	35.8 (8.8)	0.935**
Variation	23-50	22-50	

Note: TTH - tension-type headache; SD - standard deviation; * - p-value based on Fisher's exact test for mean difference of unpaired samples. ** - p value based on Student's t-test for mean differences in unpaired samples

The number of monthly night shifts was greater than 10 in 50.8% of migraine patients and 58.3% of patients with TTH (p=0.876). We found that 91.5% of migraine patients and 83.3% of patients with TTH slept six or more hours a night when they were at home, but when on duty, 100% slept four hours or less a night (Table 2).

Table 2. Distribution of the number of monthly night shifts, hours the worker slept at home and night work, and the presence of headache the day after night shift in 59 migraine patients and 12 with tension-type headache

Variables	Diagnosis		p-value
	Migraine	TTH	
Monthly night shifts			0.876*
< 10	29 (49.5)	5 (41.7)	
≥ 10	30 (50.8)	7 (58.3)	
Number of hours he/she slept at home			0.592**
< 6	5 (8.5)	2 (16.7)	
≥ 6	54 (91.5)	10 (83.3)	
Number of hours he/she slept at work			0.717**
< 3	15 (25.4)	2 (16.6)	
3 or 4	44 (74.6)	10 (83.3)	
Presence of headache the day after night shift			0.005**
Yes	49 (83.1)	5 (41.7)	
No	10 (16.9)	7 (58.3)	

It was found that 83.1% (49/59) of migraine patients and 41.7% (5/12) of those with TTH presented headache the next day after night shift. These differences were significant (p = 0.005) (Tables 2 and 3).

Table 3. Distribution of the frequency of headache triggered by sleep deprivation in 59 migraine patients and 12 with tension-type headache

Variables	Diagnosis		p-value
	Migraine	TTH	
Never	10 (16.9)	7 (58.3)	0.005*
Rarely	27 (45.8)	3 (25.0)	
Most of the time	20 (33.9)	2 (16.7)	
Every times	2 (3.4)	0 (0.0)	

Note: TTH - tension-type headache; p value calculated by Fisher's exact test, comparing: * no versus ≥ rarely, most of the time or every time.

Discussion

In this study, two groups of night workers diagnosed with migraine or TTH were compared by the relationship between headache and sleep deprivation. Therefore, in order to obtain valid and consistent data, a correct diagnosis was established for each headache, according to the criteria of ICHD-3.[12]

Primary headaches, especially migraine and TTH, are the main diagnoses found in hospitals and clinics worldwide.[13-15] These headaches have significant morbidity and socioeconomic effect[16], demonstrating a great importance for public health as it affects patients at the most productive age of their lives, between 30 and 40 years of age[17], as noted in this study.

Sleep deprivation has always been known as one of the factors that trigger a headache attack in migraine patients[1], but a community study in Malaysia has shown that sleep deprivation triggers headache attacks in both migraine and TTH patients.[18]

Many patients have both migraine and TTH. In this case, the differentiation between these two primary headaches, especially in mild forms, represents a diagnostic challenge. Some factors serve to differentiate migraine from TTH, such as headache triggered by odors that occurs only in migraine patients.[19] In our study, headache triggered by sleep deprivation was more prevalent in migraine patients, with statistical significance, and could be a differentiating factor between these headaches.

Sleep deprivation triggers headache attacks in the general population, but mainly in people who work at night. Some of these workers sleep a few hours or sometimes do not have time to sleep. In addition, those who sleep a few hours do so in a different bed than the one they usually sleep on.

There was a higher percentage of migraine patients who had headache triggered by sleep deprivation. According to ICHD-3, in migraine, headache attacks are more severe than in TTH12 and this has a negative impact with a significant socioeconomic effect due to the greater probability of missing work and having more days lost.[10,11,16]

The brain mechanisms underlying altered pain processing after sleep deprivation are unknown. However, it is believed that inadequate sleep or even total sleep deprivation may reduce pain thresholds and amplify pain reactivity in the primary somatosensory cortex.[20,21]

Conclusion

Headache triggered by sleep deprivation is highly prevalent, predominating in migraine patients.

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Original

Recommendations for the management of headaches during the COVID-19 pandemic

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Keywords:
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COVID-19
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Abstract

Background
During the novel coronavirus - COVID-19 pandemic, health care systems are facing one of its greatest challenges.
Results
Secondary headaches may need urgent care at an emergency department. Primary headaches exacerbations may require intravenous infusion. Treatment optimization is key for a better outpatient management.
Conclusion
We give recommendations on when a headache patient should go to the hospital despite the current limited resources, and primary headache management aspects during the outbreak.

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Introduction

Healthcare worldwide is facing one of its greatest crises in history[1]. With the fast spread of the novel coronavirus, healthcare systems are collapsing in some countries, with depletion of resources and crowding of emergency rooms, wards and intensive care units[2].

Since the World Health Organization's declaration that a pandemic exists, interruption of non-urgent healthcare has been generating insecurity and helplessness for people with other health problems, including headache disorders. We need strength and compassion to face up to and overcome this crisis and its imposed difficulties. One important step is to seek reliable information, and to prevent the spread of false news that generate confusion and panic. Here, we provide guidelines for the management of headaches during the COVID-19 pandemic.

Recommendations for the emergency care of headache disorders during the covid-19 pandemic

With the emergency department (ED) as a potential source of COVID-19 infection, patients experiencing headaches need advice on when to seek emergency care.

Patients should avoid ED visits for treatment of their regular headache, but if they experience a headache with red flags, urgent care may be needed. Delay in treatment may increase morbidity and mortality, telemedicine is one key tool for the management of headaches during the pandemic.

When should headache patients go to the emergency department?

COVID-19 and its symptoms are an independent determinant of ED care especially with breathing difficulties. Headache is reported in patients with COVID-19 from 8 to 34%.[3,4] However, headache and mild symptoms alone that patients may think might be a symptom of COVID-19 should not be considered as not an indication. The list below shows conditions that accompany headache and may indicate that it is a lifethreatening disorder requiring special management [5]:

1. Headache and Fever A new-onset acute headache that differs from those that were previously experienced, in association with a documented increase in temperature (>37.8 °C or >100 °F) is a sign of ongoing infection. This may be managed by telemedicine if another symptom such as painful urination suggests the site of infection (urinary, pulmonary, sinus, common cold). Evaluation and treatment can be given by telemedicine with possible referral to the ED (change in mental status, diplopia, weakness , stiff neck, etc.) and patient monitoring for clinical worsening. If the patient's condition worsens over time, or mental status is declining, this must be urgently revaluated by the healthcare provider.

2. Headache and stiff neck Headaches associated with stiff neck may be due to meningitis or subarachnoid hemorrhage (SAH). Meningitis evolves over a few days, generally associated with fever. In SAH, headache usually presents with sudden onset, as an abrupt and very severe headache, i.e. thunderclap headache.

3. Headache and change in mental status Headaches associated with mental confusion, change in behavior, excessive sleepiness or disorientation may originate from a central nervous system (CNS) disorder, stroke, neoplasia or infection. Adequate care should be given, otherwise the primary condition may worsen without treatment.

4. Eye pain, redness and/or vision loss. Headaches occurring in one or both eyes, associated with redness are more likely to be due to conjunctivitis. Glaucoma can present with eye pain or redness, but is usually accompanied by peripheral loss of vision. Vision loss may also occur in migraine auras. If a patient has experienced a headache associated with vision loss for the first time, medical attention is needed. Acute headaches that are unilateral or periorbital and occur in association with vision loss in the elderly should give rise to suspicion of temporal arteritis.

5. Headaches associated with physical exertion or fainting Physical activity can exacerbate migraine pain and is part of the diagnostic criteria for this condition. However, headaches occurring only after or during physical exertion or sexual activity may be a sign of a secondary headache due to aneurysm, arteriovenous malformation, cerebral venous thrombosis or reversible cerebral vasoconstriction syndrome (RCVS). Headache associated with fainting or seizure can be secondary to brain tumors, infections or stroke.

6. Vomiting Headaches associated with vomiting only need ED attention if oral fluid intake is not possible. Antiemetics should be considered in the early phase of a migraine attack with nausea. Vomiting is an associated feature of migraine, but may also be a symptom of intracranial hypertension.

7. New-onset headaches starting after 50 years of age If this is an ongoing problem, telemedicine is appropriate for initial evaluation. A visit to the ER should be made if an early onset acute headache is present.

8. Sudden-onset, abrupt headaches (Thunderclap Headache) Sudden-onset severe headaches that reach their peak in seconds demand immediate evaluation. They can be due to a SAH, cerebral venous thrombosis, carotid or vertebral dissection, meningitis, pituitary apoplexy, or RCVS. Recurrent thunderclap headache is a hallmark of RCVS until proven otherwise.

9. Headaches in chronic non-communicable disorders or immunodeficiency A new-onset headache in patients with ongoing infection, HIV or cancer, or in those taking immunosuppressants, needs urgent attention. If headaches started gradually but are worsening, medical attention is also needed.

Management of primary headaches during the covid-19 pandemic

Primary headache patients will need special attention during the COVID-19 pandemic, particularly if social isolation measures have been imposed by health authorities.

Mental health management
Mental health can be severely impaired, leading to anxiety, panic or depression. Suicide rates increased in China during confinement[6]. Primary headache patients may be more susceptible to mental health issues and/or may have more attacks under these conditions. Lifestyle measures should be reinforced, since food intake, mood and physical activity may be affected during the pandemic. Self help tools are often available on the internet.

Acute headache management
Primary headaches may be exacerbated during the pandemic. Headaches typically account for 1-3% of ER visits[7]. In order to avoid delays in the ED, over taxing urgent care, hospitalization, acute treatment may need optimization. This may include addition of non-parenteral options such as subcutaneous injections [(i.e. sumatriptan or dihydroergotamine (DHE)] or nasal spray formulations (sumatriptan or zolmitiptan). Patients are suggested to increase acute treatment toolbox to better self-manage their headache attacks. This includes the use of prochlorperazine suppositories. Patients may be at risk of worsening of their headache in isolation, consider new preventive methods to mitigate the risk.

Avoiding corticosteroids
Cluster headache and other primary headaches are commonly treated with corticosteroids. If possible, this should be avoided, because immunosuppression is considered to be a risk factor for negative health outcomes among individuals infected with COVID-19.

Conclusion

Headache patients will need special management during the COVID-19 pandemic. New-onset acute headaches will still need medical care. Delays in treating other life-threatening conditions caused by diversion of resources to treat cases of the novel coronavirus may lead to additional morbidity burdens, or mortality. Primary headache patients may be at risk of worsening headache control due to the limited healthcare resources available and because of changes to lifestyle due to social-distancing confinement.

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Original

Food avoidance among patients with headache

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Keywords:
Diet
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Abstract

Objective
To assess food and drink avoidance among patients with headache by means of an online survey.
Methods
Individuals with frequent headaches were invited to answer a Google Form questionnaire [https://form.jotformz.com/200233754863656]. The survey included sex, age and characteristics of headache. Dietary habits were assessed as the number of times the individual consumed certain foods, on a daily, weekly, or monthly basis. The participants could state up to three foods that they avoided for fear of headache attacks.
Results
120 complete forms were received. Alcoholic beverages were the most frequent trigger factor, reported by 26.7% of the patients. 95.5% of the participants did not consume alcohol regularly. Cheese, caffeine and fat were also recognized as potential triggers of headaches. There was no standard profile of dietary triggers and, therefore, everyone has to be personally approached in this subject.
Conclusion
The online survey confirmed that individual characteristics of headache were dietary triggers in half the participants. Alcohol was the most frequently mentioned trigger, followed by cheese, fat and caffeine.

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Introduction

The association of dietary factors and primary headaches is controversial.[1] Certain foods can trigger headache in up to 64% of patients, but not all the attacks and not all the time.[2] The literature on this subject is conflicting since no mechanism for supporting the existence of a food-headache association has yet been established with adequate evidence.[3] Among the proposed mechanisms for the onset of headache attacks through dietary triggers are the "amine hypothesis", "allergy vasodilation", "dysregulation of neurotransmitters involved in appetite" and "inflammatory diet".[3]

Perhaps one of the best examples of the conflicting evidence on triggering foods relates to chocolate. Although eating chocolate is widely believed to trigger migraine attacks, the risk of having a migraine after doing this is as likely as after eating placebo.[4] Another confounding factor may be the masticatory trigger for headache attacks: this could be misinterpreted as the food itself (for example, chewing red meat).[5] Anxiety and anticipatory behavior can also play a role among patients who believe a certain food will trigger an attack.[6]

The objective of the present study was to assess headache patients' food avoidance and consumption using an online survey.

Methods

This study was approved by the Ethics Committee at Universidade Metropolitana de Santos, SP, Brazil, under CAAE 17241719.1.0000.5509. Individuals with headache at least once a month over the last three months were invited to answer a Google Forms survey [https://form.jotformz. com/200233754863656].

This study was approved by the Ethics Committee at Universidade Metropolitana de Santos, SP, Brazil, under CAAE 17241719.1.0000.5509. Individuals with headache at least once a month over the last three months were invited to answer a Google Forms survey [https://form.jotformz.com/200233754863656].

The Kolmogorov-Smirnov test assessed the sample normality, Student's t test was used for parametric variables and Pearson's correlation and the chi-square test were used for comparisons.

Results

A total of 120 individuals answered the survey (95 women). Their average age was 36 years and 65.8% of them had presented headaches for four or more years. Migraine or probable migraine was identified in 104 subjects. The remaining 16 patients presented the characteristics of tension-type headache. Table 1 presents the list of foods that the patients avoided because they believed that these foods could induce headache attacks. Alcohol, greasy food, cheese and caffeine were the most cited triggers of headaches. Figure 1 presents the frequencies of food consumption. In summary, alcoholic beverages, fizzy drinks, fruits, processed fruit juices, fish, prawns, soya products and cured meats were often avoided by these patients. Bread, cheese, natural fruit juices, beans, eggs, read meats, chocolates and coffee were frequently consumed by these patients. Only 13 patients (10.8%) reported five or more dietary triggers for their headaches that they never consumed.

Table 1. Number (and percentage from n=120) of participants who spontaneously referred specific dietary components that could trigger headaches.

Food/drink	Number of patients (n)	%
Triggers?		
Yes	63	52.5%
Alcohol	32	26.6%
Bread	1	0.8%
Caffeine	9	7.5%
Cheese	9	7.5%
Chocolate	7	5.8%
Cured meats	4	3.3%
Egg	1	0.8%
Fat	15	12.5%
Nuts	3	2.5%
Red meat	2	1.6%
Salt	3	2.5%
Soda	3	2.5%
Spicy food	4	3.3%
Sweets	9	7.5%

There were no differences in food preference and/or avoidance regarding sex, age, frequency or type of headache. Caffeine and cheese, which were spontaneously cited as headache triggers by 10% of the patients, were among the five items most consumed by them. Cheese was consumed by 73% of the patients while black coffee was consumed by 77% of them. Canned fish and prawns were consumed by less than 10% of the patients, although none of them regarded these items as potential triggers.

Discussion

The association between headaches (particularly migraine) and dietary components is complex and often misunderstood. Physicians frequently tell patients to avoid a list of standard foods and drinks that are not triggers for all headache sufferers. In addition, it is important to acknowledge that, beyond diet, other lifestyle changes may have a role in the therapeutic success of these patients.[7] Rather than implementing a standard list of foods and drinks that are "forbidden", identification of dietary triggers for each patient is ideal. This can be done with the help of food diaries, which are an inexpensive way to understand which foods and drinks may trigger headache attacks in that individual.[8]

It was interesting to observe that half the patients considered that at least one dietary component was a headache trigger. While alcohol

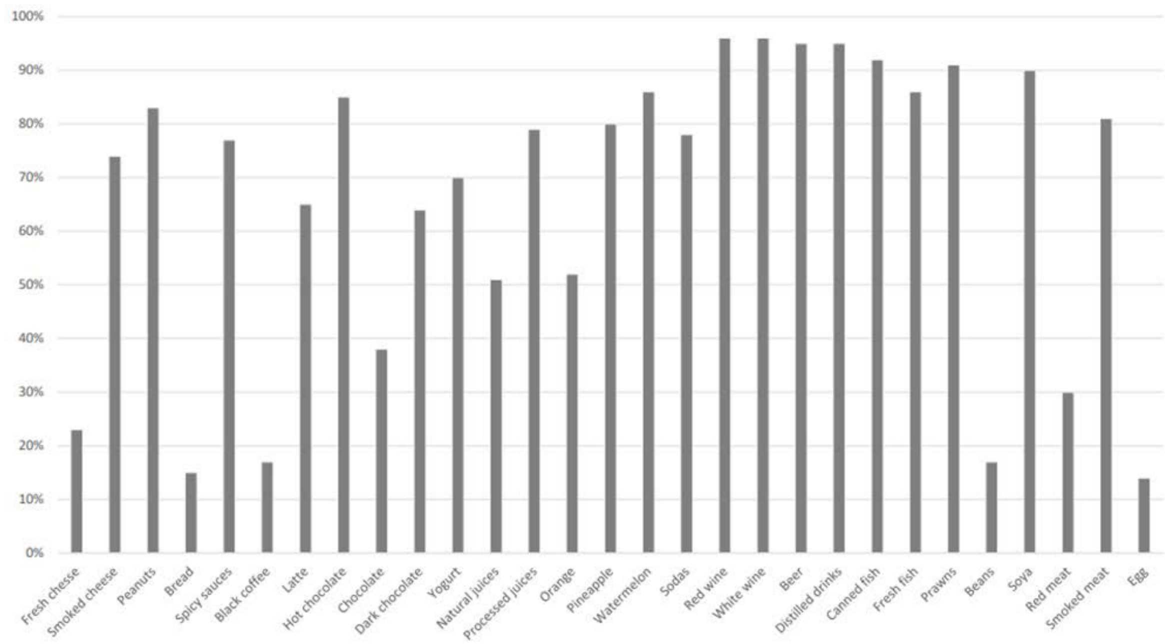

Figure 1. Percentage of individuals with headache (n=120) who avoided consuming each of these foods or drinks. Note that avoidance of dietary factors is higher than that spontaneously cited by patients.

was believed to trigger headache attacks by over a quarter of our patients, other dietary factors were remarkably different among the patients. For example, some participants could not tolerate cheese, while other ate it regularly without problems. This reinforces the idea that, like the pharmacological approach to headaches, a tailor-made dietary recommendation for each patient is necessary. While patients may give us details of their food avoidance, the biological mechanism through which dietary triggers precipitate headache attacks remains obscure.[9]

Our study had limitations. It used a small sample of individuals who answering an online survey. The diagnosing their headache was not ideal, and the sample comprised a mixture of cases of migraine, probable migraine, and tension-type headache. However, the aim of this study was not to study any specific primary headache. There were no evaluations for micronutrients or the percentage of proteins, carbohydrates, and fat in the patients' diet. All of these factors will be addressed in future studies in our group.

Conclusion

The online survey used in this study confirmed the individual characteristics of headache dietary triggers. Alcohol, the most frequently reported trigger, affected 26% of the participants. Overall, half the patients had at least one food or drink that was associated with headaches.

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