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ORIGINAL

Impact of self-medication on chronic daily headache

Impacto de la automedicación en la cefalea crónica diaria

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ABSTRACT

Introduction: chronic daily headache is a frequent condition in the general population. A high percentage of patients have an abusive consumption of analgesics that makes the headache worse and may also carry the risk of multiple pathologies produced by these drugs. It is defined as the presence of headache continuously or almost continuously for at least 15 days a month, for a period of at least three months.
Method: this work was carried out through a detailed search of medical articles and clinical trials published between 2010 and 2023.
Results: the precise pathophysiological mechanisms that lead to the development of headache due to analgesic abuse are largely unknown, however, multiple factors may be involved, including genetic predisposition, sensitization within the trigeminal system, abnormal processing of cortical pain and decreased anti-nociceptive activity of the supraspinal structures.
Conclusion: NSAIDs are the first step in the pharmacological treatment of headaches and chronic use of these drugs can cause a paradoxical worsening of the headache and the development of analgesic-induced headache, which is currently the most prevalent secondary headache worldwide.

Keywords: Analgesic; MOH; Medication; Migraine; Secundary Headache.

RESUMEN

Introducción: la cefalea crónica diaria es una entidad frecuente en la población general. Un alto porcentaje de pacientes tiene un consumo abusivo de analgésicos que hace que la cefalea empeore y además puede tener riesgo de múltiples patologías producidas por estos fármacos. Se define como la presencia de dolor de cabeza en forma continua o casi continua durante al menos 15 días al mes, por un período de al menos tres meses.
Método: este trabajo se realizó mediante una búsqueda detallada de artículos médicos y ensayos clínicos publicados entre los años 2010 y 2023.
Resultados: los mecanismos fisiopatológicos precisos que conducen al desarrollo de cefalea por abuso de analgésicos son en gran parte desconocidos, sin embargo, múltiples factores pueden estar implicados, incluyendo predisposición genética, sensibilización dentro del sistema trigémino, procesamiento anormal del dolor cortical y disminución de la actividad anti nociceptiva de las estructuras supraespinales.
Conclusión: los AINE constituyen el primer escalón en el tratamiento farmacológico de las cefaleas y el consumo crónico de estos fármacos puede provocar el deterioro paradójico de la cefalea y el desarrollo de la cefalea inducida por analgésicos, siendo en la actualidad la cefalea secundaria con mayor prevalencia a nivel mundial.

Palabras clave: Analgésico; MOH; Medicación; Migraña; Dolor de cabeza secundario.

INTRODUCTION

Headache due to analgesic medication overuse is among the top 20 causes of disability worldwide, with a prevalence of approximately 1 % in the general population.[1]

Paradoxically, when patients with a history of primary headaches, i.e., those in which pain is an intrinsic symptom capable of causing considerable disability and deterioration in quality of life, such as migraine or tension headache, overuse analgesics to treat their attacks, an increase in the development of these headaches occurs. Daily or almost daily headaches that are indistinguishable from the original or underlying pain and, being refractory to analgesia, cause the number of days of headache to increase as the days of analgesic use increase, leading to a continuous cycle.[2]

Currently, headache due to analgesic abuse is an endemic condition[3] with a worldwide prevalence that varies according to gender, with women, as in the case of migraine, being more prone to developing it.

In studies of patients with tension headache as a primary disease, i.e., a disorder primarily modulated by the central nervous system, unlike migraine, where there are more generalized alterations in sensory modulation, studies show a greater tendency to use NSAIDs over other medications.[4]

There is a clinical profile and a series of common signs and symptoms in patients who suffer from this habitual use of analgesics:

The International Headache Society establishes that medication overuse headache occurs in patients with a preexisting primary headache, i.e., those who suffer from episodes of headache for 15 days or more per month.

Excessive use is defined as use for more than 10 or 15 days per month, depending on the medication, and for more than 3 months.

Argentina is no exception to what has been observed and studied worldwide. In recent decades, the increase in analgesic consumption has probably been at the expense of over-the-counter sales.

What is the impact of excessive use of analgesics, especially over-the-counter analgesics, on the development and chronicity of chronic daily headaches?

Objective

To analyze the clinical characteristics, risk factors, and consequences of analgesic abuse in patients with chronic daily headaches, as well as to describe the recommended therapeutic strategies for its treatment briefly.

METHOD

The literature review for this study involved a detailed search of medical articles and clinical trials on various search engines, such as PubMed and EBSCOhost.

The inclusion criteria were articles in English and Spanish published between 2010 and 2023, with information relevant to this review. This coincided with the study population being patients who already had a diagnosis of primary headache, either migraine or tension-type and who excessively used NSAID analgesics for pain relief.

Keywords such as “medication overuse headache,” “headache and NSAIDs,” “headache and opioids,” “chronic headache,” “secondary headaches,” and “MOH” were used in the search.

The aim is to inform the general population about chronic daily headaches and their close relationship with medication abuse to reduce headaches caused by primary headaches. To this end, a central research question was formulated, followed by a search, reading, and selection of published articles and studies to establish a theoretical framework that allows for the interpretation of results and leads to the formulation of conclusions.

RESULTS

The precise pathophysiological mechanisms that lead to the development of headache due to analgesic abuse are largely unknown; however, it has been shown that multiple factors may be involved, including genetic predisposition, sensitization within the trigeminal system, abnormal pain processing at the cortical level, and decreased anti-nociceptive activity of the supraspinal structures, with greater neuronal excitability in the somatosensory and visual cortex in individuals with this diagnosis.[5]

It was concluded that daily analgesic use causes the central pain control areas to stop generating endorphins, consequently decreasing plasma levels of these neurotransmitters and generating a “rebound” headache, probably in response to non-painful stimuli.

Genetics was also considered to play an important role, and variants in some genes associated with molecules that influence pain modulation could explain patients’ genetic susceptibility.

It was concluded that for proper treatment, patients should be educated about the relationship between the abuse of medications for acute attacks and the possible transition to chronic headaches.

There is an urgent need to optimize prophylactic medication by following specific guidelines according to the primary headache and with the certainty that non-pharmacological interventions must be implemented to achieve the desired results.

The success rate of managing this condition is 50 % to 70 % after 6-12 months, with a higher risk of relapse during the first year after withdrawal of medication, with a recurrence rate of up to 45 %, and a higher risk in those with a history of opioid abuse and comorbid depressive disorders.[6]

It has been shown that patient education must go beyond the consequences of chronic headaches. It is necessary to explain the risk of damage to other organs with analgesic medication abuse, such as kidney and gastric damage caused by excessive use of NSAIDs.

The type of analgesic must necessarily determine the strategy for withdrawing medications. In the case of simple analgesics such as paracetamol, NSAIDs, and triptans, withdrawal should be abrupt; however, opioids should be discontinued slowly and carefully.

Although clinical studies have shown that a large percentage of patients improved after several weeks, during the first two or more weeks, the vast majority experienced a worsening of their headache episodes associated with nausea, sleep disturbances, and anxiety.

However, improvement was achieved after this initial "critical" period.[7]

It is important to note that each case was treated individually based on the patient's medical condition. It is vital to emphasize to patients the need to engage in daily aerobic activity, sleep the same number of hours every day, and not go more than three hours without eating to educate the population to modify their habits and thus reduce the abuse of analgesics, particularly over-the-counter medications.

DISCUSSION

Chronic daily headache is a neurological disorder that affects a high percentage of the world's population, causing constant and exhausting headaches that limit their quality of life, often leading sufferers to resort to self-medication to relieve symptoms, unaware of the dangers this can cause.

Science has now shown that headaches resulting from primary headaches worsen with the abuse of painkillers, as this creates a vicious circle.

Although excessive use of medications for acute attacks does not lead to chronic primary headache in all cases,[8] it is the most common cause of secondary headache, especially in those with a history of migraine, i.e., with a chronic and disabling neurovascular disorder characterized by severe headache attacks, autonomic nervous system dysfunction, and symptoms such as nausea, vomiting, photophobia, clouding of consciousness, pain on scalp palpation, paresthesias, dizziness, and, in some patients, aura.[9]

The research found several hypotheses regarding the specific cause of daily headaches.

One of them, published and developed in September 2019, establishes a link between the effect on the voltage-dependent NAV1.9 channel nociceptor, which is part of the trigeminal pain pathway. This channel generates a persistent tetrodotoxin that promotes activity in the dorsal root ganglion neurons, contributing to their inflammation and consequent neuropathic pain. Experimental studies have shown that substances such as nitric oxide activate these channels, causing headaches.[10]

To reduce pain, several authors propose the use of naproxen in patients who have not previously abused these medications. Tricyclic antidepressants and steroids are also recommended for the management of withdrawal symptoms or headache crises that occur during the analgesic medication break.

In most cases, this detoxification period is outpatient; however, patients who have used certain opioids and barbiturates may require hospitalization for the detoxification phase, given the possibility of withdrawal symptoms.

It should be noted that non-pharmacological strategies are essential. Emphasis should be placed on a healthy lifestyle, including stress reduction, restful sleep, reduced alcohol consumption, and a proper diet. It is also beneficial to ask the patient to keep a diary of pain crises and the medication used.

CONCLUSIONS

The evidence obtained indicates that medical professionals who deal with pain in their practice are less likely to diagnose medication overuse headaches compared to neurologists. This is significant in justifying the need for greater knowledge among primary care physicians and related specialists, given the high prevalence and morbidity of this condition and how debilitating it can be. Because of this, doctors should take the time to determine and discuss with patients the frequency of analgesic use for their headache episodes, regardless of whether they fall within the diagnosis of abuse or not.

Considering that treatment is specific to each case and that currently, for example, chronic migraine can be treated with numerous oral preventive drugs such as flunarizine, valproic acid, topiramate, and also injectable drugs such as Botox.

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None.

CONFLICT OF INTEREST

The authors declare that there is no conflict of interest.

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