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OVERVIEW OF HEADACHE TYPES AND MANAGEMENT

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Abstract:
Aim: Headache is a common disorder, categorized as primary or secondary, with migraines being prevalent in Saudi Arabia. Chronic migraine significantly impacts daily life, necessitating a multifaceted management approach. Our study aims to understand different types of chronic headaches and understand their management.

Methods: This review was conducted using a comprehensive search of PubMed and Google Scholar from 1990 to 2023.

Conclusion: Headaches are a prevalent neurological disorder categorized as primary or secondary, with primary headaches being more common. Primary headaches, like migraines, tension-type headaches, and cluster headaches, significantly impact the quality of life. Secondary headaches require consideration of serious conditions, especially if accompanied by neurological symptoms. Immediate consultation with specialists is crucial in uncertain cases to ensure proper diagnosis and treatment.

Keywords: chronic headache, migraine, tension-type headache, medication-induced headache

Introduction:

Headache is a common nervous system disorder that can be acute or chronic. It is characterized by pain in the head, usually above the eyebrows. Headache can be a primary or secondary symptom of another disease process. ICHD-II provides operational definitions for different types of headaches and classifies them into primary and secondary headache disorders. Most headaches seen in practice belong to the category of primary headaches, where no underlying structural cause is identifiable. Less than 10% of headaches in practice belong to the category of secondary headaches, where there is an underlying condition that can sometimes be ominous and life-threatening [1]. Headaches can substantially impact the quality of life of those affected and are considered one of the most disabling conditions. Effective history-taking and classification of headaches are essential for diagnosis and management. Headache management aims to minimize pain and improve the quality of life. The incidence of headache varies depending on the specific type of headache being studied. The prevalence of headache in Saudi Arabia varies depending on the type of headache. Migraine is a common headache disorder in the country, with a prevalence ranging from 16.4% to 27.4% [2]. MOH also has a significant prevalence, estimated to be 4.5% in one study conducted in Makkah, Saudi Arabia [3]. TTH is another prevalent headache type, with a prevalence of 26.9% [4]. The overall prevalence of migraine in Saudi Arabia is comparable to or even higher than in other parts of the Middle East region. The high prevalence of migraine and MOH in Saudi Arabia highlights the need for early detection, proper management, and necessary lifestyle measures to minimize the burden of these conditions. Further research is needed to investigate the association between migraine and other comorbidities and risk factors.

Healthcare practitioners, such as GPs, play a crucial role in the management of headaches and often the first point of contact for patients with headaches lasting ≥ 6 months, and they are responsible for diagnosing, treating, and referring patients as needed. Headache is undoubtedly the predominant reason that leads individuals to seek consultation from neurology specialists[5]. It is widely acknowledged that approximately 20–30% of all new referrals made to out-patient neurological clinics are directly attributed to the presence of headache symptoms. This pervasive condition undoubtedly imposes a significant burden on patients, healthcare providers, and society as a whole, thereby necessitating the specialized knowledge and expertise of neurologists to effectively manage and treat this prevalent ailment.

TYPE OF HEADACHE:

Migraine:

Migraine, a condition characterized by neurological pain, has a profound impact on a considerable number of individuals. Indeed, it stands as the most prevalent neurological disorder, leading to substantial repercussions on both brain activity and the accompanying behaviors that manifest during recurring migraine attacks[6]. Nevertheless, these attacks' root causes and genesis continue to elude researchers, as a complete understanding remains elusive. Nonetheless, there is a prevailing belief that the TS plays a pivotal role in the activation of migraines [7]. It is postulated that migraine can be elucidated as an aberration in the functioning of the neuronal components comprising the TS, brainstem, and cortex. Migraine is a complex neurological disorder that manifests in a variety of symptoms and a multitude of sensory sensitivities [6-8]. The symptoms encompass the physical manifestations of pain and how the body reacts to stimuli. These reactions can include a heightened sensitivity to light, known as photophobia, and an increased sensitivity to sound, referred to as phonophobia. Moreover, individuals with migraine often experience a heightened sensitivity to smells, a condition known as osmophobia. In addition to these sensory sensitivities, migraine can also manifest in autonomic nervous system dysfunction, which can further exacerbate the overall impact of the condition. Furthermore, migraine is associated with a range of motion sensitivity symptoms, which can further complicate the experiences of those affected. These symptoms include kinetosis, which refers to a sensitivity to motion, as well as vestibular symptoms and balance impairments. These additional symptoms can greatly impact an individual's ability to function and navigate the world around them, adding an additional layer of complexity to the overall migraine experience. It is

important to note that the presence of pain does not solely characterize migraine. In fact, individuals with migraine often experience a distinct set of premonitory symptoms that occur in the hours or even days leading up to the onset of a migraine attack. These symptoms can include lethargy, excessive yawning, sensitivity to light and sound, as well as an increased sense of thirst and specific cravings. These premonitory symptoms should not be overlooked, as they can be even more debilitating than the headache. By recognizing and addressing these associated symptoms, healthcare professionals can provide more comprehensive care and support to individuals with migraine, ultimately improving their overall quality of life.

Chronic migraine, a neurological disorder characterized by the occurrence of headaches for more days than not in a given month, holds great significance in its impact on the day-to-day lives of individuals across different age groups, including children, adolescents, and adults. This impact is evidenced by the resulting disability, reduced productivity, and the substantial economic burden on affected individuals [9]. The management of chronic migraine necessitates the implementation of both acute and preventive treatment approaches, each contributing to the overall care of those suffering from this condition. Acute treatment options encompass a range of pharmacological therapies, such as triptans, dihydroergotamine, neuroleptics, non-steroidal anti-inflammatory drugs, and corticosteroids, all of which aim to provide immediate relief from the symptoms experienced during a migraine episode [9]. On the other hand, preventive treatments are designed to reduce the frequency and severity of migraine attacks. These treatment options include the use of injectable botulinum toxin type A, as well as monoclonal antibodies that target the calcitonin gene-related peptide. Furthermore, the management of chronic migraine extends beyond pharmacological interventions, as it also encompasses the consideration of neuromodulator devices and behavioral and complementary therapies. These additional approaches are regarded as potential adjuncts or alternative treatments to the traditional methods of managing chronic migraine. It is critical to approach the conceptualization and treatment of chronic migraine from a holistic standpoint, recognizing the interconnectedness of various factors. This entails adopting a multidisciplinary approach that takes into account the presence of comorbidities, clinical reasoning, cost implications, and the availability of different treatment options. By doing so, healthcare providers can optimize the care provided to individuals living with this debilitating condition.

Tension-Type Headache (TTH):

TTH a prevalent form of primary headache that impacts individuals across all age cohorts, presents itself with a manifestation of mild to moderate pain that endures from a mere handful of minutes to an extended number of weeks. The duality of TTH, which can be either episodic or chronic, adds an additional layer of complexity to its already intricate nature, thereby rendering its diagnosis an arduous task, particularly when dealing with the pediatric population [10]. When it comes to addressing TTH, a comprehensive approach involving both pharmacological and non-pharmacological methods is employed. Within the pharmacological realm, a range of options is available, including analgesics, NSAIDs, as well as tricyclic antidepressants. In parallel, non-pharmacological interventions, such as physiotherapy, manual therapy, bio-feedback electromyography, physical exercises, and acupuncture, are also employed to combat TTH's debilitating effects. In essence, the treatment of TTH necessitates a multifaceted approach that encompasses various modalities of care, ensuring that individuals afflicted with this condition are provided with a comprehensive array of options to alleviate their suffering.

Cluster Headache (CH):

CH is a highly intense manifestation of primary headache syndrome that is characterized by excruciating head pain on one side of the head, accompanied ipsilateral autonomic symptoms such as lacrimation, rhinorrhea, myosis, ptosis, and sweating of the forehead or face [11,12]. Patients with cluster headache often exhibit a restless behavior and a sense of agitation. This debilitating condition can occur in episodic episodes, during which periods of relief may be experienced, or it can persist chronically, with frequent and recurring bouts that can last for weeks or even months, followed by a

period of complete absence of symptoms. Nevertheless, despite the extensive knowledge in the field, the exact underlying cause of CH remains elusive, yet a plausible connection has been established between the trigeminovascular system, parasympathetic nerve fibers, and the hypothalamus, suggesting a complex interplay between these structures. To diagnose cluster headache, a comprehensive patient history is essential, which involves meticulously documenting the patient's symptoms, their duration and frequency, as well as the exclusion of other primary headaches and potential secondary causes that might mimic this condition. It is crucial to differentiate cluster headache from other primary headache disorders, such as migraine or tension-type headache, which require distinct treatment approaches. Consequently, the identification of the underlying cause of the headache and the exclusion of other potential etiologies is of paramount importance to ensure an accurate diagnosis. When it comes to managing cluster headache, various treatment options are available, tailored to the specific needs of each patient. These treatment modalities can be categorized into three main approaches: abortive, transitional, and preventive. Abortive treatments aim to alleviate the pain during an acute episode, while transitional therapies help to bridge the gap between acute attacks and periods of remission. Preventive strategies, on the other hand, are aimed at reducing the frequency and severity of cluster headache episodes, thereby improving the patient's quality of life. However, despite the current array of treatment options, there is still a pressing need for further research to identify novel therapeutic targets and develop more effective prophylactic measures, particularly for those suffering from chronic cluster headache, who face the greatest burden of this condition. Through the discovery of new treatment modalities and a deeper understanding of the pathophysiological mechanisms involved, we can strive to alleviate the suffering experienced by individuals living with cluster headache and improve their overall well-being.

Chronic Daily Headache (CDH):

CDH encompasses chronic migraine, chronic tension-type headache, new daily-persistent headache, and hemicrania continua [13]. CDH, which affects approximately 4-5% of the general population worldwide, poses a significant societal conundrum. The categorization of CDH is still a subject of debate; however, recent revisions of diagnostic criteria have played a crucial role in resolving certain quandaries. Unfortunately, there are currently no specific approved therapies for CDH, and the availability of large-scale controlled trials is limited. When it comes to addressing CDH, treatment approaches encompass both pharmacological and nonpharmacological options. It is imperative to meticulously exclude secondary causes and identify risk factors that contribute to the development of CDH. An additional concern is the coexistence of medication overuse headache alongside primary headache disorders. Ultimately, the ramifications of CDH can be debilitating for both individuals and society, resulting in substantial direct healthcare costs and having an indirect economic impact.

Nummular Headache (NH):

NH is uncommon type of headache that may occur either primary or as secondary for various underlying causes, such as subcutaneous lesions, bone lesions, and intracranial lesions [14,15], is characterized by the occurrence of localized pain in a circular or oval-shaped region of the scalp. This particular pain area typically measures between 1 to 6 centimeters in diameter. The pain experienced can either be continuous or intermittent, and is often described as dull or moderate in terms of intensity. While the precise cause of nummular headache remains somewhat elusive, it is thought to involve a combination of peripheral and central mechanisms. In order to accurately diagnose this condition, a thorough examination of the symptomatic regions is necessary, and in some cases, additional investigations may be required to rule out the presence of any underlying disorders. When it comes to the treatment of nummular headache, there are several options available. These include the use of analgesics, anti-inflammatory drugs, botulinum toxin, gabapentin, and other medications that are typically used to treat seizures. In recent years, the ketogenic diet has also emerged as a potential alternative therapy for this condition, showing promising results. However, it is important to note that more research is needed in order to fully confirm the effectiveness of these various treatment options.

Trigeminal Neuralgia (TN):

Trigeminal neuralgia, a chronic neuropathic pain disorder, is characterized by recurrent episodes of stabbing facial pain that occur in the distribution of the trigeminal nerve. The primary cause of this debilitating condition is vascular compression of the trigeminal nerve root [16,17]. However, it can also be secondary to other neurological conditions, such as multiple sclerosis or intracranial hypertension. It is crucial to highlight that trigeminal neuralgia has a profound impact on the patient's quality of life, as it can severely impair their daily functioning. Interestingly, the incidence rate of trigeminal neuralgia is estimated to be between 4-29 people per 100,000 people per year, with a higher prevalence among women than men.

Diagnosing trigeminal neuralgia relies heavily on a thorough clinical history and physical examination. Nevertheless, in certain cases, additional imaging assessments, such as magnetic resonance imaging (MRI) or computed tomography (CT), may be necessary for subcategorization and differential diagnosis [17,18]. These advanced imaging techniques provide valuable insights into the underlying causes and help clinicians tailor the most appropriate treatment approach. It is important to note that the treatment options for trigeminal neuralgia are multifaceted, encompassing both pharmacotherapy and non-pharmacotherapy interventions. In cases where initial treatments prove to be ineffective, surgical intervention becomes a viable option. Among the surgical approaches available, microvascular decompression stands as the first-line management strategy for patients who do not respond to medical treatments. This procedure aims to relieve the compression on the trigeminal nerve by repositioning or removing the offending blood vessel.

Medication Overuse Headache (MOH):

Medication overuse headache (MOH) is a secondary disorder characterized by the presence of frequent and chronic headaches that result from the excessive utilization of acute medications for the purpose of alleviating headache symptoms. This condition exerts a significant negative impact on the overall quality of life experienced by patients and poses a considerable burden on healthcare resources. In accordance with the established diagnostic criteria, MOH is defined as the occurrence of headache on a minimum of 15 days per month in individuals diagnosed with a primary headache disorder who have consistently and excessively relied on acute or abortive headache medication for a duration exceeding three months [3,19,20]. Epidemiological data suggests that MOH is prevalent in approximately 1-2% of the global population within their productive age span. The effective management and prevention of MOH necessitate the adoption of a multidisciplinary approach, which encompasses patient education, counseling, and the implementation of preventive therapeutic strategies such as the administration of botulinum toxin A and monoclonal antibodies targeting calcitonin gene-related peptide (CGRP). Recent scientific investigations have demonstrated the efficacy of monoclonal antibodies specifically targeting CGRP in the prevention of chronic migraine, even among patients afflicted with MOH. The comprehensive management of MOH entails a reduction and restriction in the utilization of acute medication, the initiation of migraine prophylaxis, and the consideration of non-pharmacological interventions.

Cervicogenic Headache (CeH):

CeH is a type of secondary headache disorder, arises from a primary musculoskeletal ailment in the cervical region. This condition manifests as unilateral pain in the occipital and upper cervical regions, and is exacerbated by movements of the neck, prolonged awkward positions of the head, or external pressure applied to the symptomatic side [21,22]. The diagnosis of cervicogenic headache can pose a challenge due to the fact that neck pain may not always be a prominent symptom. Nevertheless, extensive research has shed light on various physical impairments that are closely associated with cervicogenic headache. These impairments include restricted cervical range of motion, altered motor control of the neck flexors, as well as diminished strength in both the flexor and extensor muscles. Through meticulous analysis, it has been determined that a combination of factors, such as reduced motion, upper cervical joint signs, and impaired function of the deep neck flexors, can accurately

identify cervicogenic headache and effectively differentiate it from other types of headaches. As a primary course of treatment, conservative management options like rehabilitation or physical therapy are preferred for individuals suffering from cervicogenic headache. In addition, certain medications such as gabapentin and pregabalin have shown some promising benefits. However, in cases where conservative treatment fails to yield the desired results, zygapophyseal injection coupled with potential radiofrequency ablation may be considered as an alternative approach.

Sinus Headache:

Sinus headache denotes the occurrence of discomfort in the facial area, often ascribed to sinusitis or conditions related to the sinuses [23,24]; Symptoms characteristic of sinus headaches encompass facial pain, facial pressure, nasal and sinus blockage, as well as indications such as nausea, sensitivity to light or sound, a moderate to severe headache, a pulsating or throbbing sensation, and exacerbation triggered by physical activity, all of which are also present in migraine disorders. The term "sinus headache" is generally employed when a headache is accompanied by pain in the face or facial pressure, which is associated with sinus conditions. It is a common occurrence for sinus headaches to be misdiagnosed, thus it is of utmost importance to accurately diagnose patients in order to prevent unnecessary investigations and treatments. Radiographic findings that suggest headaches related to sinus issues may include the presence of filling opacity in the sinus cavities, air-fluid levels, and changes in the bone structure. Chronic rhinosinusitis, a prevalent nasal ailment, is often associated with headaches, and by considering the location, variation, and pattern of the headache, one can better direct towards the correct diagnosis. It is worth noting that the prevalence of migraines and tension-type headaches is higher than that of sinus-related headaches in patients who exhibit symptoms indicative of sinus headaches.

Other Secondary Headache:

in the realm of diagnosing headaches, it is imperative to consider the possibility of more serious conditions rather than simply attributing them to primary headaches[25]; When an individual experiences a sudden onset of a severe headache, often described as a thunderclap headache, it may indicate the presence of various conditions such as subarachnoid hemorrhage, intracranial hemorrhage, vertebral artery dissection, cerebral venous thrombosis, or reversible cerebral vasoconstriction syndrome. Furthermore, if these headaches are exacerbated by activities such as coughing, straining, or sneezing, it raises concerns about the potential of increased intracranial pressure. In such cases, imaging studies are necessary in order to rule out any underlying issues that require immediate intervention. Moreover, the occurrence of additional neurological symptoms alongside the headache should not be overlooked. For instance, the presence of sensory changes, weakness, diplopia (including 6th cranial nerve palsy), Horner's Syndrome, or visual field defects warrants further investigation. Additionally, if the headache worsens with eye movement and is accompanied by impaired vision, it may suggest the possibility of retrobulbar neuritis. Furthermore, the observation of an enlarged blind spot can be an indication of papilledema or increased intracranial pressure. When a patient presents with a headache accompanied by a stiff neck, nausea, vomiting, recent onset of confusion, altered consciousness, and fever, it raises concerns of an underlying infection such as meningitis or encephalitis. In such cases, immediate hospital admission and lumbar puncture are necessary for proper evaluation and management.

In situations where there is uncertainty about the nature of the headache, it is crucial for the family physician to seek further advice when encountering a red flag. Prompt consultation with specialists or other healthcare professionals is essential in order to ensure the best possible patient care and outcomes. Failing to do so may result in delayed or inadequate diagnosis and treatment.

CONCLUSION:

Headaches are a prevalent neurological disorder categorized as primary or secondary, with primary headaches being more common. Primary headaches, like migraines, tension-type headaches, and cluster headache significantly impact quality of life. Secondary headaches require consideration of

serious conditions, especially if accompanied by neurological symptoms. Immediate consultation with specialists is crucial in uncertain cases to ensure proper diagnosis and treatment.

Abbreviation:
International Classification of Headache Disorders : ICHD-II
Tension-Type Headache: TTH
Cluster Headache: CH
Medication Overuse Headache : MOH
Nummular Headache: NH
Cervicogenic Headache: CeH
Chronic daily headache: CDH
general practitioners : GP
trigeminal system : TS
nonsteroidal anti-inflammatory drugs : NSAID

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