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Zastosowanie jogi w leczeniu przewlekłych bólów głowy

Application of Yoga in the Treatment of Chronic Headaches

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Streszczenie

Wstęp

Bóle głowy stanowią istotny problem zdrowia publicznego. Zajmują szóste miejsce wśród najczęstszych przyczyn niepełnosprawności na świecie. Mają wpływ na pogorszenie jakości życia, zwłaszcza w okresie aktywności zawodowej, prowadząc do wysokich kosztów ekonomicznych. Pomimo powszechnego występowania, bóle głowy są często niediagnozowane i niewłaściwie leczone, co potęguje ich negatywne konsekwencje na społeczeństwo.

Cel badania

Celem badania jest ocena skuteczności jogi w redukcji częstotliwości, czasu trwania i intensywności bólów głowy, a także poprawa jakości życia pacjentów cierpiących na migreny i napięciowe bóle głowy. Przegląd ma na celu zbadanie możliwości włączenia jogi jako metody uzupełniającej w terapii bólu głowy.

Materiały i metody

Przegląd obejmuje wyniki badań klinicznych dotyczących wpływu jogi na migreny i napięciowe bóle głowy. Porównano efekty jogi z konwencjonalnymi metodami leczenia, uwzględniając poprawę parametrów bólowych, poziom stresu i samopoczucie psychiczne pacjentów.

Wnioski

Badania wykazały, że joga skutecznie redukuje częstotliwość i intensywność bólów głowy oraz poprawia jakość życia pacjentów, a także zmniejsza poziom stresu i poprawia równowagę autonomicznego układu nerwowego. Połączenie jogi z leczeniem farmakologicznym przynosi lepsze efekty niż stosowanie samej terapii konwencjonalnej. Konieczne są dalsze badania nad długoterminową skutecznością jogi oraz określenie optymalnych parametrów terapii.

Abstract

Introduction

Headaches represent a significant public health problem, ranking sixth among the most common causes of disability worldwide. They negatively affect the quality of life, particularly during the working years, leading to high economic costs. Despite their widespread

prevalence, headaches are often underdiagnosed and inadequately treated, which exacerbates their negative impact on society.

Aim of the Study

The aim of this study is to evaluate the effectiveness of yoga in reducing the frequency, duration, and intensity of headaches, as well as improving the quality of life in patients suffering from migraines and tension-type headaches. This review aims to explore the potential for incorporating yoga as a complementary method in headache therapy.

Materials and Methods

The review includes the results of clinical studies examining the effects of yoga on migraines and tension-type headaches. The effects of yoga were compared with conventional treatment methods, considering improvements in pain parameters, stress levels, and patients' psychological well-being.

Conclusions

Studies have shown that yoga effectively reduces the frequency and intensity of headaches and improves patients' quality of life. It also reduces stress levels and enhances the balance of the autonomic nervous system. Combining yoga with pharmacological treatment yields better outcomes than conventional therapy alone. Further research is needed to evaluate the long-term effectiveness of yoga and to determine the optimal therapeutic parameters.

Słowa kluczowe: joga, migrena, ból głowy, aktywność fizyczna, styl życia

Keywords: yoga, migraine, headache, physical activity, lifestyle

1. Introduction

1.1. The Significance of Headaches

Headache is a significant public health issue. It ranks sixth among the most common causes of disability worldwide and severely limits the quality of life (1). As headache-related disorders tend to be most debilitating during the productive years of life, they lead to high economic costs due to work absenteeism, decreased work productivity, and increased healthcare expenses. This contributes to substantial indirect annual financial costs (2). Despite this, many

healthcare professionals and patients alike perceive headaches as an insignificant and trivial ailment (3). It continues to be an underdiagnosed and undertreated condition, resulting in significant negative consequences for the population.

1.2. Epidemiology of Headaches

According to the World Health Organization (WHO) report, approximately 3 billion people worldwide experience headaches (4). Chronic headache is defined as the occurrence of headaches for at least fifteen days per month over a period of more than three months (1). Chronic headaches include chronic migraine, chronic tension-type headache, and trigeminal autonomic cephalalgias. Headaches have an estimated global prevalence of approximately 47%. The Eurolight project showed that the lifetime prevalence of headaches in the European population is 91%, while the estimated annual prevalence of any type of headache is 79% (5). Tension-type headaches affect 38% of individuals, while migraines affect 14% of individuals. Migraine is approximately three times more common in women than in men (3). The Global Burden of Disease Study ranks migraine as the fifteenth most common cause of disability worldwide (6). However, it is the second leading cause of disability among individuals aged 10–24 years and the fifth among those aged 25–49 years. Migraine prevalence and years lived with disability due to migraine peak between the ages of 35 and 39 (2). The development and persistence of headaches are linked to various non-modifiable and modifiable factors, such as stress, obesity, medication overuse, poor diet, and irregular sleep patterns.

1.3. Challenges of Conventional Headache Treatments

Headache treatment involves numerous challenges. Physicians and patients often focus on symptomatic treatment, while addressing the underlying cause of the headache should be a priority in both diagnosis and treatment. Long-term efforts to manage chronic headaches, and pharmacological treatment, predispose individuals to medication overuse headaches, gastrointestinal and liver damage, addiction, memory impairment, depression, mood disorders, anxiety disorders, weight gain, and cardiovascular and neurological complications (3). The unpredictable nature of headaches often leads patients to avoid taking medications regularly, opting instead to wait until the pain intensifies — a behavior that contributes to medication overuse (7). Adherence to physician-recommended prophylactic treatment is low; depending on the study, 50–65% of patients with migraines discontinue treatment regardless of the type of medication due to ineffectiveness, side effects, or personal beliefs, despite the significant

disability caused by migraines (8, 9). In search of relief, patients increasingly turn to alternative medicine and holistic approaches. The use of complementary and alternative medicine (CAM) among patients with severe headaches has become increasingly popular. Due to the numerous side effects of pharmacotherapy and patients' reluctance to engage in long-term medication use, it is essential to implement safe and effective non-pharmacological treatments that can improve overall quality of life and reduce the burden of the disease (10).

1.4. Yoga as a Potential Therapeutic Approach for Headaches

Yoga may serve as a valuable complement to existing pharmacological interventions and, in some cases, as a key method for both the prevention and treatment of headaches (3). The use of yoga as an accessible and cost-effective resource could make a significant contribution to supporting universal healthcare. For this reason, there is a need to review the available evidence to explore the potential of integrating yoga with existing headache treatment methods. This review will focus on assessing the effectiveness of yoga in reducing the frequency, duration, and intensity of headaches.

2. Classification and Pathophysiology of Headaches

2.1. Classification of Headaches According to the International Classification of Headache Disorders (ICHD-3)

Headache is one of the most common clinical problems among patients seeking medical attention. Primary headache, according to the definition provided by the International Classification of Headache Disorders (ICHD-3), includes headaches caused by independent pathophysiological mechanisms and encompasses tension-type headache (TTH), migraine, trigeminal autonomic cephalalgias (TACs) and other primary headache disorders (11).

Tension-type headache (TTH) is very common, and numerous studies strongly suggest its neurobiological basis (11). Tension-type headache is classified into an episodic type — including a infrequent type, with headache episodes occurring less than once per month, and a frequent type — as well as a chronic type. Increased pericranial tenderness is the most significant abnormal finding in patients; it usually occurs between attacks, intensifies during an actual headache, and increases with the intensity and frequency of headaches.

Migraine is a primary headache disorder with two main types: migraine without aura, which is a clinical syndrome characterized by headache with specific features and associated symptoms, and migraine with aura, which is characterized by transient focal neurological symptoms that precede or accompany the headache (11). Prodromal and postdromal symptoms of migraine with aura include hyperexcitability, depression, food cravings, yawning, fatigue, and stiffness or pain in the neck. Chronic migraine includes attacks of all types, subtypes, and variants.

Trigeminal autonomic cephalalgias (TACs) share the clinical features of unilateral headache and, typically, prominent cranial parasympathetic autonomic symptoms, which are lateralized and ipsilateral to the headache (11). These syndromes activate a normal human trigeminal-parasympathetic reflex, with the clinical signs of cranial sympathetic dysfunction being secondary.

2.2. The Role of the Nervous System and Stress Response in the Pathogenesis of Headaches

Stress can be defined as a state of emotional and psychological tension when an individual faces a demanding situation. Stress is a headache trigger in nearly 70% of individuals(3). Headache attacks themselves can act as a stressor, leading to an increased frequency of headaches. When the frequency or intensity of stressors increases, the protective adaptive responses responsible for stabilizing brain function become dysregulated. This results in an allostatic load. Stress activates the sympathetic nervous system(4). The endocannabinoid system is engaged to regulate stress, leading to the activation of the hypothalamic-pituitary-adrenal (HPA) axis, which in turn increases anxiety and pain perception. Daily exposure to various forms of stress can transform mild tension into chronic stress. This cascade of effects can lead to further maladaptation, causing headaches to become chronic. Therefore, stress can initiate acute headaches in predisposed individuals and also contribute to the development of chronic headaches.

3. Yoga as a Method for Headache Prevention and Therapy

3.1. Definition and Significance of Yoga in Integrative Medicine

Yoga is an ancient mind-body practice that has been developed for thousands of years, combining mental focus, perception, and intention to cultivate mindfulness (12). This

integration of perception and action helps an individual become more directed, motivated, and purposeful, shaping their relationship with the world. Yoga encompasses a variety of practices, including meditation, breathing exercises, postures (asanas), philosophy, cleansing techniques, and deep relaxation (13). The term "yoga" originates from the Sanskrit root “yuj,” meaning "to control" or "to unite." It was developed over 3,000 years ago to promote harmony within an individual’s physical, mental, emotional, and spiritual well-being. Yoga is practiced worldwide in various styles, with intensity levels ranging from light to vigorous, and incorporates elements of strength, balance, coordination, and flexibility (14-16). The most commonly practiced form today is Hatha yoga, which focuses on two main components: asana and pranayama. Asana, which literally means 'seat,' refers to the physical postures of yoga, aimed at strengthening the body (17). Pranayama, derived from the Sanskrit words "prana" (meaning "life breath") and "ayama" (meaning "regulation"), consists of breathing exercises typically performed in a seated position (18). These exercises focus on four key aspects: inhalation, exhalation, internal breath retention, and external breath retention. Iyengar and Parināma yoga incorporate props, tools, and ropes to assist or enhance proper joint movement, depending on the practitioner’s physical condition.

3.2. The Mechanisms of Yoga Key to the Pathophysiology of Headaches

A promising direction in headache treatment is the prevention and management of chronic stress, which plays a key role in the pathophysiology of pain. Stress sensitizes nociceptors and increases the risk of other headache risk factors, such as sleep disturbances and obesity (1). Therefore, reducing stress may be a crucial strategy in treating headaches. One effective approach for reducing chronic pain, stress, mental health issues, and obesity is yoga. Another important aspect of headache management involves focusing on the prevention of depression and self-efficacy, both of which play a significant role in migraines and their associated disability. Psychological factors such as locus of control, self-efficacy, and emotional states can influence the likelihood of a headache attack, its perceived severity, and its impact on the patient’s daily life (3). Unfortunately, psychological factors are often considered significant only when a patient has a coexisting mental health condition. Studies on the impact of mindfulness in stress reduction have shown that increasing awareness is linked to improvements in various chronic pain conditions (19-21). Mindfulness is particularly helpful in managing migraines, as it reduces the emotional response to headache triggers such as

stress. Additionally, mindfulness can decrease the affective experience and intensity of pain by engaging brain regions involved in cognitive and emotional pain modulation. Patients commonly report that the reasons for practicing yoga include increased energy levels, improved immune function, disease prevention, and enhanced overall health (22). Yoga promotes awareness, presence, concentration, and inner focus, allowing for greater freedom of movement through muscle stretching, joint relaxation, and strengthening of periarticular muscles (12). It reduces tension, improves coordination, and enhances endurance. Therapeutic yoga involves using specific postures and practices to treat health conditions by preventing or alleviating structural, physiological, emotional, and spiritual pain and suffering (18). For some patients with headaches, physical exertion may trigger symptoms, leading them to avoid exercise (23, 24). However, yoga requires mindfulness, and its movements can be slow or focused on static stretching, making it a more mindful and comfortable choice for these patients.

4. Yoga in the Prevention and Treatment of Headaches – A Review of Clinical Studies

4.1. Effectiveness of Yoga in Reducing the Frequency and Intensity of Migraines

Various studies indicate that yoga is effective in alleviating the clinical symptoms of migraine headaches, as well as reducing the associated anxiety and stress, which in turn lowers the frequency of migraines and their related disability (25). Research involving both patients with migraine with aura and those without aura demonstrated that practicing yoga five days a week for six weeks, compared to conventional care, significantly decreased the monthly frequency of headaches and the intensity of pain, as measured on the Visual Analog Scale (VAS) (5). In patients with migraines, yoga led to a significant reduction in the frequency of attacks and associated clinical symptoms (26-30). Key improvements included a reduction in headache intensity, frequency, pain index, affective pain index, total pain index, anxiety and depression scores, and the use of symptomatic medications. A six-week intervention involving yoga practices such as asanas, breathing techniques, relaxation, and meditation performed three times a week reduced headache frequency, disability, and pain intensity, while also shortening the duration of episodic migraine attacks (2). Moreover, three months of 60-minute yoga sessions practiced five days a week resulted in reductions in both the frequency and intensity of migraines, as well as the anxiety and depression associated with them (31). A study

focusing on women in menopause also found that practicing yoga for 60 minutes daily, five days a week, led to a decrease in both the severity and frequency of migraines (32).

4.2. The Impact of Yoga on Tension-Type Headaches

Extensive meta-analyses have demonstrated the effectiveness of yoga exercises in managing various types of pain, including headaches (12). Evidence suggests that even short-term yoga interventions can yield positive results. For example, a study involving patients with chronic tension-type headaches showed that after just four weeks of yoga intervention, pain levels significantly improved, as measured by the Visual Analog Scale (VAS) (5). Further analysis of yoga interventions for pain and disability associated with headaches revealed positive outcomes, particularly in improving the frequency, duration, and intensity of headaches (26). This short-term efficacy of yoga was most notable in patients suffering from tension-type headaches (1). In another study involving women with premenstrual syndrome, yoga led to an increase in alpha brainwave activity following a session (22). Participants reported feeling more relaxed and demonstrated improved performance on tasks requiring sustained attention. Among veterans suffering from headaches due to mild traumatic brain injury (mTBI), the yoga intervention was deemed highly satisfactory, with notable improvements in symptoms (33).

4.3. Yoga and the Control of Headache Triggers

Yoga plays a significant role in reducing sympathetic nervous system activity and increasing parasympathetic activity. The mechanisms underlying yoga's general effects include enhanced vagal nerve activity and changes in brain wave patterns (22). During a yoga session, the Shavasana pose has been shown to inhibit activity in the posterior hypothalamus, lower blood pressure, and reduce cortisol levels, all after just one session (26). Studies exploring the effects of yoga on brain waves, as well as structural changes and brain activation, have demonstrated an increase in gray matter, alongside greater activation of the amygdala and prefrontal cortex. Improvements in memory, concentration, and brain activity synchronization have also been noted as a result of yoga practice. In a study of nurses with musculoskeletal pain, participants who practiced yoga for six months reported better sleep quality and reduced work-related stress. Research on pranayama has shown a wide range of health benefits,

including stress reduction, positive effects on the cardiovascular system, improved respiratory function, and enhanced cognitive function (18). It has also contributed to a decrease in perceived fatigue and anxiety. Additionally, a study involving college students found that Hatha yoga led to improved mood and overall well-being (34). Regular yoga practice has been shown to increase self-awareness and self-efficacy, both of which contribute to a better quality of life for participants (27).

4.4. Comparison of Yoga Effectiveness with Other Headache Prevention Methods: Integrating Yoga into Multidisciplinary Therapy

A study comparing patients with migraines who received pharmacologic therapy alone with those receiving complementary yoga therapy demonstrated that the latter group experienced a significant reduction in headache frequency, pain intensity, and the number of pain relief pills taken(35). Adherence to the yoga interventions in the study was significantly correlated with both the baseline severity of the condition and physical aspects of the quality of life. Sensory and affective pain assessments showed notable improvements after 1-3 months of complementary yoga therapy compared to baseline levels(36). When combined with conventional care, yoga led to a reduction in sympathetic nervous system tension and an increase in vagal nerve tone. In contrast, conventional care alone reduced sympathetic tone but did not significantly affect vagal nerve tension.

4.5. Limitations and Potential Contraindications of Using Yoga in Patient Therapy

Studies have not identified any significant adverse effects associated with practicing yoga in patients with migraines or tension-type headaches(1). Yoga has been found to be safe and is not associated with major side effects(35). The only reported adverse effects following yoga interventions were weight gain and dry mouth.

6. Conclusions

6.1. Current State of Knowledge on Yoga in the Prevention and Treatment of Headaches

Yoga, as an integrated approach within medicine and public health, has become a valuable tool in the prevention and treatment of headaches while also empowering patients to engage in self-care. Research consistently demonstrates that yoga can reduce the frequency, duration,

and intensity of headaches, and significantly improve the quality of life for those suffering from migraines and tension-type headaches. Several studies have highlighted that even short-term yoga interventions can alleviate headache symptoms and mitigate accompanying conditions such as stress, depression, and anxiety, which can exacerbate disability. By addressing both physical and psychological components, yoga helps restore autonomic balance and reduce the disability associated with chronic headache conditions. In conclusion, current research supports the use of yoga as an effective means to alleviate symptoms of primary headache disorders. Healthcare providers should therefore familiarize themselves with the principles of yoga to offer informed guidance to patients seeking alternative or complementary treatments.

6.2. Gaps in Literature and the Need for Further Research on the Long-Term Effectiveness of Yoga

Postures, breathing techniques, and meditation may have synergistic effects. However, despite their key role in therapy, these individual components have not yet been studied separately to determine their specific impacts. Since yoga consists of various elements, the frequency, intensity, and type of practice can vary. Future research should compare different styles of yoga, as some may be more beneficial for particular conditions. Alongside the type of yoga, it is crucial to establish the ideal session duration, frequency of practice, and overall length of the intervention. Additionally, investigating the long-term effects of yoga therapy is essential, as well as evaluating the feasibility of practicing yoga at home, enabling patients to independently manage headache prevention. Developing comprehensive guidelines will be necessary for healthcare providers, including doctors and physiotherapists, to offer optimal care to their patients.

Author's contribution

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