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ACUPUNCTURE AS COMPLEMENTARY TREATMENT FOR LOWER BACK PAIN

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Abstract

Introduction: Lower back pain is one of the most common disorders in the world. Acupuncture is one the methods of treatment, but its efficiency is still researched.

Aim of the study: To verify the effectiveness of acupuncture on low back pain.

Material and Methods: Search of the PubMed database using the following keywords: acupuncture, lower back pain. Only full-length articles were taken into consideration.

Results: The studies show that acupuncture is effective in the treatment of chronic low back pain and is not inferior to the usual care. However its efficiency in treatment of acute low back pain is not satisfactory and patients still require additional pharmacotherapy.

Conclusion: Acupuncture is efficient in the treatment of chronic low back pain, however more research is needed on its efficiency in treatment of acute low back pain.

Keywords: acupuncture, lower back pain

Introduction

Musculoskeletal conditions affect about 1.71 billion people worldwide. The most common of them is low back pain (LBP), which has a prevalence of approximately 568 million people [1]. The most usual treatment methods for LBP vary, depending on whether the pain is acute or chronic. In acute low back pain, the primary care providers most often recommend pharmacologic management and staying active. In case of chronic low back pain, the nonpharmacologic methods are much more often recommended. These include physical therapy, massage therapy, chiropractic care and acupuncture [2]. However, according to guidelines published in 2017 by the American College of Physicians, the nonpharmacologic treatments should be selected as first-line methods in treating low back pain, both acute and chronic. The proposed nonpharmacologic treatment methods were for example multidisciplinary rehabilitation, exercise, acupuncture, spinal manipulation, mindfulness-based stress reduction or yoga. Notwithstanding, if the aforementioned treatments failed, the pharmacotherapy was allowed. The nonsteroidal anti-inflammatory drugs were recommended

as first-line therapy drugs, with opioid drugs permitted only if all the other treatment methods failed [3]. Of the nonpharmacologic treatment methods, acupuncture remains as one of the most intriguing for scientists. Even though it's becoming more and more popular even in western countries, its efficiency in treating low back pain is still debated [4]. However, it's important to note that self-management and being responsible for your own health, plays a crucial role in treatment of low back pain. Overall, it's essential to develop optimal treatment strategies that are at the same time safe, cost-effective and easy to administer [5].

Materials, Methods and Purpose:

The purpose of this article was to analyse the efficiency of acupuncture in the treatment of lower back pain. During the search of the PubMed database the following keywords were used: acupuncture, lower back pain. Only full-length articles were taken into consideration.

Acupuncture

Acupuncture is one of the non-pharmacological methods used to treat mainly chronic musculoskeletal pain[6] but also acute pain, for example postoperative pain, pain in the emergency department, acute back pain, labour pain, dysmenorrhea and headaches [7]. It has its origins in Traditional Chinese Medicine (TCM). The idea of acupuncture is based on the belief of the existence of 14 meridians, which are interconnected with each other, to the specific organs and to exit points – acupuncture points. The meridians are pathways through which Qi flows. During the procedure thin needles are inserted into specific areas of the body - acupuncture points. The process is believed to help unblock Qi and to allow its smooth flow, thus relieving the pain[8].The traditional method of acupuncture known as manual acupuncture (MA) is gradually being overshadowed by electroacupuncture (EA). During the electroacupuncture the effect of the acupuncture is strengthened by the addition of the electric current[9]. The procedure of acupuncture is connected to the concept of Deqi. Deqi is thought of as the manifestation of the excitation of Qi and is believed to play a significant role in the success of therapy. The sensation of Deqi is linked to the increase in the blood flow, which can be shown in the functional magnetic resonance imaging [8]. Deqi is characterised by sensation of heaviness, soreness, tingling or warmth [10].

Lower Back Pain

Lower back pain is one of the most common disorders in today's society and one of the leading causes for disability. It is responsible for about 60.1 million years lived with disability globally[11]. The age group 40-69 has the highest prevalence of the disorder [12]. Low back pain is defined as pain or discomfort which occurs between the lower rib margins and the inferior gluteal fold[13]. LBP is categorised as acute when it lasts up to 4 weeks, subacute - 4 to 12 weeks, and chronic, when it lasts for longer than 12 weeks. Chronic low back pain (CLBP) may correlate with specific pathology, such as local infection, trauma, injury or structural deformity. When the cause of the CLBP is known, the disorder is termed as a specific chronic low back pain[14]. However, most often no causal pathology is found and the patients are diagnosed with non-specific chronic low back pain (NSCLBP) [8]. People who experience an onset of low back pain have a high chance of being diagnosed in the future with chronic low back pain – it concerns about 40-75% of the patients[13].

Acupuncture and pain

The mechanism of the perception of pain is a complicated process which involves nociceptors, ascending and descending fibres and the central nervous system. Acupuncture is believed to decrease pain in multiple ways. It increases the descending inhibitory effect and modifies central sensitization [15]. Two kinds of nerve fibres – A δ fibre and C fibre take part in the transmission of pain. The A δ fibre is myelinated and thus responsible for fast transmission of stimuli. Moreover the A δ fibre points to the precise location of pain. The C fibres are unmyelinated and so the transmission of pain is slow. The C fibres produce the sensation of burning or dull, poorly-localised pain. Activation of the fibres during acupuncture leads to analgesic effect[8].

Acupuncture and lower back pain - review of available clinical trials

In a multicentre randomised controlled trial conducted in South Korea, the authors studied the effectiveness of electroacupuncture with usual care on non-acute pain in patients after back surgery. In the study took part 108 patients, half of whom were treated with electroacupuncture and usual care, and half of them were treated with usual care alone. The inclusion criteria were as follows: the patients had to be between 19 and 70 years old, experienced recurring or persistent low back pain after back surgery, lasting at least 3 weeks,

and on the VAS they described their pain at the level of 5 or more. Overall there were 8 sessions which took place twice a week. The patients' VAS score, functional improvement (ODI – Oswestry Disability Index) and quality of life were assessed at the weeks 3,5,8, and 12 counting from the beginning of the treatment. In the study there was no significant difference between the groups in quality of life. Significant difference in pain intensity was observed between groups at weeks 3 and 5 in favour of electroacupuncture with usual care. Statistically significant differences in ODI were found at weeks 3, 5 and 8 with better functionality in the group treated with electroacupuncture and usual care. The study showed that EA with usual care is a safe and more effective way of treating patients with non-acute pain after low back surgery than usual care alone [16].

In a randomised, single-blind, controlled trial conducted at the University of Sao Paulo, the authors studied the effectiveness of manual acupuncture and electroacupuncture on disability and pain in patients diagnosed with chronic nonspecific low back pain. The inclusion criteria were as follows: the participants had to be between 20-60 years old, they experienced chronic nonspecific low back pain, the minimum intensity of the pain was at least 3 on NRS – Numeric Rating Scale. 66 patients took part in the study. Half of them were randomised to the group which was treated with 12 sessions of manual acupuncture, and half of them were treated with 12 sessions of electroacupuncture. The sessions took place twice a week. The primary outcomes of the study were pain (assessed by the NRS) and disability (assessed by The Roland Morris Disability Questionnaire – RMDQ). The secondary outcomes were quality of pain, depression, quality of life, global perceived effect, kinesiophobia. The level of pain and disability was assessed before the treatment began, after 6 weeks, and at the follow up – after 3 months. The results showed improvement after treatment in both groups regarding pain and disability, however without significant difference between the groups. The secondary outcomes showed improvement in both groups, with only kinesiophobia showing significant difference between the groups, in favour of manual acupuncture. The study suggests that electroacupuncture and manual acupuncture are both effective methods in treatment of chronic nonspecific low back pain [9].

Jiang-Ti Kong and other co-authors conducted a study, in which they compared the effectiveness of electroacupuncture versus Sham Treatment on reduction of pain in adults diagnosed with chronic low back pain. In this double-blind randomised clinical trial took part 121 adults. The participants were divided into two groups – 59 patients were assigned to the real electroacupuncture treatment, and 62 patients were treated with sham electroacupuncture. The primary outcome was change in pain severity measured by National Institutes of Health PROMIS pain intensity scale. The secondary outcome was a difference in RMDQ. The age required of the participants was between 21 – 65 years, the duration of the LBP had to be at least 6 months, the pain intensity rated at least 4 on a NRS, and the patients had to be fluent in English. The patients were administered overall 12 sessions of sham or real electroacupuncture during six weeks. Two weeks after the end of the treatment the patients' pain intensity and disability were assessed. In the study there was not found a significant difference between real and sham electroacupuncture on change in pain intensity. However, the study showed significant difference in RMDQ in favour of real electroacupuncture [17].

Lately an innovative form of electroacupuncture was developed called electronic acupuncture shoes (EAS). The shoes are a combination of electroacupuncture and transcutaneous electrical nerve stimulation. Bo-Yan Yeh and his co-authors conducted a study, in which they researched the efficiency of the EAS in patients, who have chronic lower back pain. In this prospective, randomised, double-blinded controlled study took part 83 participants, who were diagnosed with chronic low back pain and were between 20 and 60 years old. In the experimental group (EAS group), the patients were treated with EAS and given placebo nonsteroidal anti-inflammatory drugs (NSAIDs). In the control group (NSAID group) the patients received NSAIDs – 400mg ibuprofen, thrice a day and they were subjected to placebo EAS treatment, in which the electric current was absent. The treatment was being performed for weeks. The participants' pain level was assessed using the visual analog scale (VAS). The pain was assessed at the first visit at the clinic, before and after each EAS treatment, and at 2 weeks after the last treatment. Better results in both analgesic effect and treatment success were obtained in the experimental group, proving that electronic acupuncture shoes could be considered a good alternative treatment for patients with CLBP, who for some reason cannot or do not want to be treated with NSAIDs [18].

In an observational study conducted in New Zealand by Soliday and Betts, the authors examined the possibility of treating lumbopelvic pain (LPP) in pregnant women with acupuncture. In the study took part 81 women, who described their symptoms in the MYOP. The MYOP was a self-report measure, in which the women described their pain, its severity and may add other symptoms. The women who had at least 3 treatments were asked to fill in a feedback form, in which they reported the experienced adverse events. 88.9% of the women had a reduction of pain severity and 20,8% of the women experienced adverse effects, however most of them were minor. The study shows that acupuncture is a relatively safe and effective way of treating lumbopelvic pain in pregnant women [19]. In a multicentre, randomised, single-blinded study, the authors studied the effectiveness of acupuncture in treating pain in the emergency department. The inclusion criteria were: the participants were 18 years old or more, needed analgesia for migraine, low back pain or acute ankle injuries, and they described their pain on the verbal numerical rating scale (VNRS) as 4 or more. In the trial took part 528 patients, 270 of whom were diagnosed with acute low back pain . In the study the participants were divided into three groups – one group was treated with only acupuncture, another with only pharmacotherapy, and the last one with both of the treatments. In these groups, the patients with different types of pain were distributed proportionally, so the groups had as similar compositions as was possible. The severity of the pain was measured using the VNRS at the moment of treatment, hourly after the treatment, and about 36-60 hours after the discharge. The primary outcome was pain one hour after treatment assessed on VNRS. The results showed that the patients from the acupuncture only group had to receive significantly more rescue drugs than the other groups. Between the groups there were no significant differences, and overall 16% of the participants experienced the reduction of the pain to the level below 4 on the VNRS and 36,9% experienced at least 2 points of pain reduction on the VNRS. The results showed that the effectiveness of acupuncture in treating pain in the emergency department is comparable to pharmacotherapy. However, the study indicated that none of the proposed treatment options provided optimal acute analgesia and so other treatment options are needed [20].

DISCUSSION

The guidelines published by the American College of Physicians recommend using nonpharmacological methods as first-line treatment in the management of low back pain [3]. Acupuncture is one of such methods, but it still is often thought of as some new-age trend, with unlikely effectiveness. However, the analysed research shows that acupuncture has a scientifically explained effect and can be used to reduce chronic low back pain [17]. Acupuncture could be considered as a treatment method in acute low back pain, but only if taking into account that the patients may still require additional pharmacotherapy [20]. Acupuncture could be especially advantageous for patients who cannot be treated with NSAIDS, for example because of gastroenterol disorders or allergy. Moreover, the EAS could be helpful in situations like the COVID-19 pandemic, when patients have to keep social distance or are in quarantine. Unfortunately, such shoes were only recently developed and are not easily available to the public [18]. Notwithstanding, it is important to note that acupuncture is not without its limitations - some patients may be afraid of the procedure, in cases of acute pain the patients may still ask for rescue drugs, and an experienced acupuncturist is needed to perform the intervention. Furthermore, the acupuncture session is more time-consuming than taking medication, so patients may not be willing to explore the nonpharmacologic option. However, the physicians should educate the patients on the adverse effects of excessive pharmacotherapy and present them with other treatment methods [3].

CONCLUSION

Acupuncture is an effective method in the treatment of chronic low back pain. However, based on the available research, the efficiency of acupuncture in the treatment of acute low back pain is still debatable and more research is needed.

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