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Comprehensive Review: Conservative Treatment of Spine Problems through Acupuncture Techniques

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Abstract

Conservative treatment of spine disease with acupuncture involves using acupuncture to stimulate healing, reduce pain, and improve function. Presently, No method or treatment is considered ideal for handling spine problems. Acupuncture is scientific, effective, and without any side effects. Moreover, Acupuncture treatment can be continued with other therapies without any interaction. Several studies based on systematic reviews show a short-term clinically relevant reduction of pain in Chronic Lower back pain. World Health Organization anticipated that spinal problems would be common in elderly people. Hence,these acupuncture treatments can provide the best results with other ongoing Western medicines. Studies also suggested that post-operative care could give the best and quickest outcomes if acupuncture treatments were administered with Western treatment. Huge clinical trials with long-term follow-ups need to be declared to the level of choice of treatment.

Keywords: Acupuncture, TCM, Lower Back Pain, Traumatic lower back pain, Neck pain.

INTRODUCTION

Erect posture symbolizes the biological superiority of the human race but also carries many hazardous mechanical drawbacks, such as lower back pain, sciatica, facet arthroplasty, disc degenerative disorder, and spondylolisthesis.

LBP is a common condition and expensive to treat. It causes more global disability than any other condition. Among several types of conservative treatments, acupuncture is one of the more promising with strong shreds of evidence and efficacy in short-term results.[1-4]

LBP is not a disease itself but rather a group of symptoms that trouble patients of all age groups. It is the most common musculoskeletal condition affecting the adult population with a prevalence of up-to 84%.[5]

According to 2006. American Review, the economic burden of more than 100 billion USD per year represented by lost productivity and treatment costs due to LBP.[6]

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Degenerative spinal changes have been described in Neanderthal hominids and Egyptian mummies.[7,8] William Heberden[9] concluded that LBP disease was supposed to be caused exposure to cold and dampness. Some other reasons such as aortic aneurysm, Potts's disease and gastric cancer and gynecological disorders.[10] Thomas Brown (1828) suggested for the first time the spine and adjacent nerves could be the source of back pain.[11]

The Lancet Commission attributed back pain to railway travel,which caused repeated injuries to the spine.[12] This phenomenon was known as "railway spine"

After a research paper from Mixter and Barr, Orthopedic surgeons' emphasis on LBP and sciatica moved to the intervertebral disc.[13] Subsequently, there was huge number of disc surgery seen to treat LBP with or without sciatica. Failed LBP surgery cases were prevalent in pain clinics. This was because of the assumption that, Disc Degeneration Disease (DDD) was the cause of LBP. This assumption is still valid today; even though a degenerated disc neither press any structure, nor the focus of inflammation. The associated conditions such as spondylolisthesis, lumbar canal stenosis or associated scoliosis can be the seat of inflammation.[14] Studies suggested that acupuncture is quite a safe type of treatment and the risk of serious adverse events was estimated to be 0.05 per 10,000 treatments and 0.55 per 10,000 in ideal patients.[15] Similar results were depicted in 229,230 patients with more than 2 million visits.[16] Acupuncture is quite effective in musculoskeletal pain, as several studies proved that. In a meta-analysis of 17922 patients with chronic non-malignant pain, 90% of the pain-relieving effects of acupuncture remained sustained at 12 months.[17-19] It is found that acupuncture resulted in clinical benefits and cost-effectiveness in a randomized controlled trial plus non-randomized cohort involving 11,630 patients. Moreover, acupuncture could be continued with routine care without any side effects.[20]

Additionally, Acupuncture was proven cost-effective in the longer term in a Randomized controlled trial involving 241 patients receding acupuncture treatment for LBP.[21]

Conservative treatment is often first line of treatment for traumatic lower back pain, specially for the cases without any serious injuries like fracture, nerve compression or organ damage. On the other side, if injury happens, we need to apply surgical treatment. In fact, no surgical treatment is without risk. In this scenario, stem cell therapy may provide a better option to serve the injured patient without any surgical complications like nerve injury, implant failure, implant breakage, malunion, non-union or other issues. Contrarily, Stem cell therapy has its limitations; however, it's better than surgical treatments in some aspects.[22-30]

Spondylolisthesis and acupuncture

Spondylolisthesis can be defined as anterior migration or slippage of a vertebral body relative to the next caudal vertebral segment.[31]

Spondylosis and spondylolisthesis occur most commonly in the fifth lumbar vertebral body but may occur at any lumbar level. Patientswith spondylosis and spondylolisthesis are more frequently symptomatic.[32,33] The symptoms concerned with spondylolisthesis are weakness, numbness in lower extremities, and LBP.[34]

The classification system Newman[31] and Marchetti and Bartlozzi[35] are the most widely recognised method. The severity of spondylolisthesis is measured by dividing the slip distance by the caudal body width and depicted as a percentage.

The slip percentage is then categorised according to the Meyerding scale as follows; Grade 0, no slip; Grade I, 1 to 25%; Grade II, 26 to 50%; Grade III, 51 to 75%; Grade IV, 76 to 100%; Grade V: complete slippage. Both the Meyerding scale and slip percentage are reliable measures of severity.[36,37]

Mostly patients with spondylolisthesis do not worsen with time and rapid deterioration is very rare.[38,39] Physical therapy and pain management are the mainstay of conservative treatment. Most of practitioners begin with anti-inflammatory and analgesic medications and one antacid. If symptoms persist beyond four to six weeks, the patient may receive epidural steroid injections and get short-term benefits. These benefits are reduced low back pain and pain associated with radiculopathy.[34,40]

Acupuncture and medications

Acupuncture treatment improved physical function, pain and high treatment satisfaction, as determined within patients with L5 radiculopathy. Interestingly, medication and flexion exercise improved only symptom severity ZCQ scores. Additionally, acupuncture was more efficient than physical exercise on the physical function subscale of the ZCQ and than medication on the treatment satisfaction subscale.[41]

Several Lumbar Spinal Stenosis (LSS) patients are elderly, careful consideration must be delivered to risk related with analgesic drugs. According to

the American Geriatric Society, NSAIDs may cause GIT ulcers, cardiovascular events, renal disease, hypertension, and susceptibility to bleeding (due to cyclooxygenase inhibition). The guideline recommends acetaminophen as the first-line drug for LBP and osteoarthritis of the elderly.[42]

Acetaminophen shows excellent analgesic action not only on nociceptive but also neuropathic pain, on several central neurotransmitters demonstrated[43] Another study has revealed that acetaminophen is effective not only for physical pain but also for psychogenic pain or anxiety.[44,45] A study suggested that several LSS patients complain of psychological distress.[46] Henceforth, acetaminophen may treat not only nociceptive and neuropathic pain during LSS (Lumbar Spinal Stenosis) but also positively affect psychogenic factors.[47]

Acupuncture is the most efficient conservative treatment for L5 radiculopathy. Studies suggested that acupuncture stimulation of muscles increases pain threshold and muscle blood flow, which might reduce muscle strain.[48] Acupuncture also led to higher scores on the Zurich claudication Questionnaire (ZCQ) treatment satisfaction. Acupuncturists continuously use techniques such as stroking, touching, pushing the painful areas, which lead to emotional relief.[48]

Clinical symptoms improvement and blood flow improvement are interconnected studies also suggested that acupuncture affect the blood flow improvement and possible mechanism was related with the regulation of systemic vascular resistance via modulation of sympathetic tone.[49]

Drawbacks of acupuncture treatment

Deaths following acupuncture treatment are rare but they do happen. The fatalities are usually because of acupuncture needle penetration of vital organ. This eventually causes pneumothorax, cardiac tamponade or major haemorrhage.[50] About 90 deaths after acupuncture have been reported in the medical literature.[51]

Thus, Acupuncture is associated with more number of deaths than any other alternative medicine methods. This certainly doesn't mean that this sort of event is higher. Rather, we can say that Acupuncture is quite common worldwide. Because of a lack of data, we can't calculate the exact frequency of such events.For the UK, no deaths were reported[51] in Britain.

Several studies depicted that roughly 10% of patients experience mild and transient adverse effects following acupuncture.[4,5] Therapists should be aware of the risks and fatalities related to acupuncture.[6]

DISCUSSION

In this review, we summarised the evidence regarding the use of acupuncture for the treatment of spine disorders. Specifically, we compiled evidence for the therapeutic effect of acupuncture. This review further described the drawbacks and likely mistakes during acupuncture treatment that may lead to serious complications.In our study, the majority of studies were single-center trials with small data and single-center trials were usually associated with problems such as limited external validity, lack of blinding, and limited external validity, some experts suggested that their results are unreliable.[55]

There is still a significant gap between Eastern and Western scientific experience regarding acupuncture treatment. In Western countries, acupuncture is used mainly as a modality to treat painful conditions.In Eastern countries, acupuncture has a large spectrum of neurological and bone disorders. This difference can be explained by several factors such as sociopolitical, historical, cultural, and political differences.[56] Acupuncture treatment is common worldwide and to integrate acupuncture into modern healthcare systems in Western countries, a standard monitoring and evaluation system should be added, along with the efficiency of practitioners should be monitored.[57] Over the next few years, rigorous Multi-center clinical trials should be conducted worldwide to establish acupuncture as a legitimate treatment option for LBP and other spinal problems too.

Together, Western and Eastern Scientists, researchers, and practitioners have been producing evidence-based studies that prove the utility and significance of acupuncture in modern medicine. We must promote acupuncture in combination with modern medicine to the next level. Brain activity provided by functional MRI could be very useful in this scenario; fMRI that are conducted during acupuncture treatment can verify the undeniable effects of acupuncture.[58]

Interestingly, another study indicated that acupuncture has a very significant impact onthe nervous system and neural structures.This analysis showed that acupuncture helps to deactivate the pain-processing areas of the brain.[59]

Role of acupuncture in cancer

Studies proved that during cancer treatments, acupuncture might strengthen immunity during chemotherapy and be able to minimize the side effects of nausea, hiccups, and vomiting. Studies on animals proved the ability of acupuncture torelieve cancer pain. Other studies concluded that acupuncture can stimulate the immune system by enhancing lymphocyte and natural killer cell activity.[2]

Since the 1950s, Chinese scholars have researched Western medical knowledge and begun to integrate acupuncture with modern medical treatments.[6] A combination of Western and Eastern practices boosts the treatment and approach in a system-oriented manner. A perfect example of this is scalp acupuncture, which we believe is the most significant development in Chinese acupuncture over the last 60 years. Scalp acupuncture is the fusion of Western and traditional Chinese Medicine (TCM). Scalp acupuncture locates representative areas of the cerebral cortex and influences their physiological functioning with acupuncture-needling techniques.

This needling can influence the central nervous system activity and treat several nervous System-related disorders such as stroke, multiple sclerosis, Parkinson's Disease, traumatic brain injury, cerebral palsy, phantom pain, complex regional pain, post-traumatic stress disorders (PTSD), and spinal injury. With scalp acupuncture, some patients can recover completely, rest 80% to 90% of patients have shown remarkable improvement.[60] Last but not least, Acupuncture coverage within insurance policies is available easily.

CONCLUSION

Increased collaboration between acupuncturists and conventional healthcare providers enhances the healthcare system. The development of remote acupuncture services for increased accessibility is essential for serving the rural population. Enhanced education and awareness among healthcare professionals could make the common people more aware of the limitations and reach of acupuncture.

Secondly, the exploration of acupuncture's synergistic effects with other therapies like physical therapy, chiropractic treatment, physiotherapy, and Western medical treatment proved its worth worldwide.

In sum, acupuncture treatment stimulates healing, reduces pain, and improves function, and also we can optimize the role of acupuncture according to the patient's condition. Studies also suggested that post-operative care could give the best and quickest outcomes if acupuncture treatments were administered with Western treatment. Huge clinical trials with long-term follow-ups are warrantedaccording to the level of choice of treatment.

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