

Original Paper

Acupuncture Treatment for Multiple Sclerosis – Can It Be Effective?

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Abstract

Acupuncture is widely used in both Eastern and Western countries as a complementary or alternative treatment modality for various diseases. Experimental, but also clinical studies have recently provided evidence that it can be effective in treating multiple sclerosis patients, since it seems to improve motor, as well as, sensory disturbances. It is safe and can have a long-lasting effect, even in patients resistant to conventional treatment.

Keywords: Acupuncture; Multiple Sclerosis; Treatment

Introduction

Multiple sclerosis (MS) is a complex autoimmune disease that affects the central nervous system (CNS). The animal model used to study MS is experimental autoimmune encephalomyelitis (EAE) that mimics many of the clinical and pathological features of MS [1]. Current immunomodulatory treatment for MS does not always ameliorate some of the symptoms, such as pain and depression, thus patients may benefit from alternative/complementary treatments such as acupuncture.

Materials and Methods

Acupuncture has been practiced in Asia for many centuries and in Western countries over the last decades. It represents one of the most popular forms of alternative medicine. Electroacupuncture (EA, a more potent form of traditional acupuncture combined with electrical stimulation of the needles) has been shown to relieve EAE severity compared to control groups and modulate the immune response by increasing production of ACTH by the hypothalamus in EAE rats [2]. Stimulation of particular acupuncture points (e.g. Zusanli - ST36) in rats released endorphins associated with reduction in EAE severity (reduced EAE clinical scores) by modulating immune cells (decreased lymphocyte infiltration into spinal cords) compared to untreated rats ($p < 0.05$) [2, 3]. Naloxone adminis-

tration, an opioid antagonist, abolished the therapeutic effects of acupuncture, suggesting that acupuncture's mechanism of action might be mediated, at least in part, through enhancement of endogenous opioid peptides and beta-endorphins in EAE rats [3].

Results

Myelin basic protein (MBP) immunized animals developed neuropathological signs of EAE [3]. EA-treated rats had markedly reduced signs of disease and demyelination, potentially due to opioids released following EA-treatment [3]. Moreover, proliferation of T cells in response to MBP68–86 in rats was reduced after EA treatment compared to the control group of EAE rats [3]. This inhibition of proliferation might be b-endorphin-mediated, since EA-treated rats had significantly elevated b-endorphin concentrations in both the hypothalamus and in plasma compared to untreated rats in the EAE group [3]. It has also been shown that EA treatment could restore the balance to the Th1/Th2/Th17/Treg T helper cell responses in rats by stimulating the hypothalamus to increase ACTH production [2].

Acupuncture treatment in individual cases has been reported to improve movement disorders (standing and walking), sensory disturbances (numbness and tingling in the limbs),

urinary incontinence, as well as general symptoms, including dizziness [4]. Remission of symptoms after a complete acupuncture treatment has been reported to last even beyond 2 years[4]. Finally, acupuncture appears to be beneficial for a proportion of patients with fatigue who are resistant to conventional drugs such as amantadine [5].

Discussion

We have shown recently that acupuncture can have a beneficial effect in central nervous system disorders, such as migraine, but also exert neuroprotection in stroke patients [6,7]. Acupuncture is commonly used in combination with conventional treatments (such as prescription medication, physical therapy and over-the-counter medication) by individuals with multiple sclerosis in various countries around the world [8]. It can not only relieve symptoms, increase the patient's quality of life and slow and reverse the progression of physical disability, but also reduce the number of relapses and help MS patients stay in remission [4].

Many studies have demonstrated that electroacupuncture possessed various therapeutic effects, including alleviation of pain, reduction of inflammation and improvement of sleep disturbance by increasing beta-endorphin production [2, 9, 10].

However, there have been reports of ineffectiveness of acupuncture treatment regarding disease progression of MS, but even in these cases a transient improvement of functional status and a feeling of well-being was reported by the patients [11, 12]. Therefore, although many studies suggest that acupuncture can improve MS symptoms, there is still an unmet need for further well-designed, placebo-controlled studies in order to establish internationally accepted treatment protocols and determine safety profiles.

Conclusions

Acupuncture and its more potent form, EA, can significantly improve various aspects of quality of life of patients (including a reduction in pain and depression) in both relapsing-remitting and secondary progressive multiple sclerosis [13, 14]. Many patients with multiple sclerosis could benefit from acupuncture treatment and physicians should be aware of this alternative/complementary treatment modality and provide guidance and monitoring in order to improve outcomes.

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