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TREATING INSOMNIA WITH ACUPUNCTURE – CURRENT EVIDENCE

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INTRODUCTION

Insomnia is one of the most common sleep disorders that usually affects stroke and cancer patients, as well as perimenopausal women, among others. Current drug treatment (e.g. hypnotics) is often ineffective or associated with undesirable side-effects. Acupuncture is a promising treatment modality for patients with insomnia, since numerous experimental and clinical studies have documented its effectiveness in improving various sleep parameters.

RESULTS

Experimental Data

Acupuncture has been found effective in experimental rat models of insomnia and its effects were mediated through various pathways. Increased levels of pineal melatonin (MT) protein, MT1 and MT2 mRNAs, as well as increased expressions of circadian clock genes of Period (*Per*) 1 and *Per* 2 mRNAs in the hypothalamic suprachiasmatic nucleus (SCN) have been found after acupuncture treatment ($P<0.05$). Acupuncture also led to an improved sleep latency and duration (compared to control group), through an up-regulation of expression levels of circadian *Clock* mRNA and Bmal 1 mRNA in hypothalamic regions, such as the ventrolateral preoptic area (VLPO) and the suprachiasmatic nucleus (SCN)($P<0.01$). In another animal model of insomnia, acupuncture treatment significantly decreased levels of the interleukins IL-1, IL-2, and IL-6 and the tumor necrosis factor-α in the hypothalamus, hippocampus, and prefrontal cortex ($P<0.05$). Moreover, levels of noradrenaline, dopamine, and glutamic were also significantly decreased after acupuncture, contributing to better sleep parameters.

Clinical Data

Acupuncture treatment in humans has been found to be effective in reducing insomnia, anxiety, fatigue and depression and these beneficial effects, assessed with the Pittsburgh Sleep Quality Index (PSQI) and the Insomnia Severity Index (ISI) (among others) were maintained for at least 3 months after treatment. Particularly, sleep onset latency, number of awakenings and wake after sleep onset were reduced, while total sleep time and sleep efficiency were significantly increased after acupuncture treatment (all $P<0.01$). Acupuncture in patients with insomnia reduces serum levels of norepinephrine (NE) and increases serum levels of 5-hydroxytryptamine (5-HT), as well increases brain-derived neurotrophic factor (BDNF) expression, and these alterations are significantly more effective compared to oral antidepressants (such as trazodone). Acupuncture can improve sleep quality of primary insomnia more effectively than estazolam (a benzodiazepine), and is more beneficial for regulation of hyperarousal state. Furthermore, combined acupuncture treatment and estazolam administration (2mg) in patients with insomnia can even more significantly improve total sleeping duration, sleeping latency, sleeping arousal and sleeping efficiency ($P<0.05$). Acupuncture in women with perimenopausal insomnia increased estradiol (E2) levels and decreased follicle-stimulating hormone (FSH) and luteinizing hormone (LH) levels 30 days after treatment. These acupuncture effects were superior to those of the control group (oral administration of 0.4 mg or 0.8 mg alprazolam before sleep) (all $P<0.05$).

RESULTS

Current evidence suggests that acupuncture is an effective treatment modality for insomnia, as well as depression (which is commonly related to long-term insomnia). In particular it can significantly improve sleep duration and quality, as well as reduce sleep latency and disturbances. Thus, acupuncture can positively affect physical and mental health and lead to a better quality of life.