



Mini Review

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# Current Research in Acupuncture Treatment for Sudden Sensorineural Hearing Loss



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## Abstract

Sudden sensorineural hearing loss (SSNHL) is defined as a sensorineural hypoacusis of at least 30 dB over 3 continuous speech frequencies within 3 days. The risk factors and the etiology for idiopathic SSNHL are still uncertain. Currently Steroids are the most commonly used treatment for SSNHL but the effectiveness of glucocorticoids remains conflicted. Previous research showed interventions combining acupuncture with western medicine comprehensive treatment (WMCT) had more efficacious results in the treatment of SSNHL than western medicine comprehensive treatment alone. The effective outcome of acupuncture may be the improvement of local blood circulation and promotion blood flow to the ear, enhancement of blood circulation and blood flow in the ear and the increasing of oxygen supply of the ear. Even though the mechanism of acupuncture is unclear, the combination of acupuncture and WMCT has better effectiveness than WMCT alone.

**Keywords:** Sudden sensorineural hearing loss; Acupuncture; Traditional chinese medicine; Qi stagnation; Acupoints

**Abbreviations:** SSNHL: Sudden Sensorineural Hearing Loss; WMCT: Western Medicine Comprehensive Treatment

## Introduction

Sudden sensorineural hearing loss (SSNHL) is defined as a sensorineural hypoacusis of at least 30 dB over 3 continuous speech frequencies within 3 days [1] and affects 5 to 20 per 100,000 populations, with nearly 4000 new cases per year in the United States [2]. SSNHL can occur at any age, nevertheless most commonly affects patients 43 to 53 years of age [3] and similar numbers of men and women are affected [4]. Risk factors for idiopathic SSNHL are still uncertain [5]. The etiology of most cases of SSNHL is also unclear [6]. Assumptive causes for idiopathic SSNHL include viral cochleitis, microvascular events [7] and autoimmune disorders [8,9]. A research showed an association of genes related to prothrombotic states and promoted serum levels of fibrinogen and homocysteine in patients with SSNHL offered a multifactorial basis for microvascular events as a cause of SSNHL [9]. Strong evidence for the efficacy of any treatment option for the patients with SSNHL currently is not available.

## Western Medicine Comprehensive Treatment

Steroids are the most commonly used treatment for SSNHL [10] and may be administered systemically or locally

via intratympanic installation. Oral glucocorticoids have been considered standard therapy for SSNHL; however, the benefit of these drugs is unclear. Systematic reviews and meta-analyses conclude that the effectiveness of glucocorticoids remains conflicted [11,12]. Some retrospective series studies indicated about 40% patients do not provide a fully response to systemic steroids treatment [13]. Many therapies have been evaluated including intratympanic steroid [14], hyperbaric oxygen therapy [15], antiviral medication [16-18] and plasmapheresis [19].

But evidence for the efficacy of any treatment modality is not strong enough that no official guidelines or position statements from professional organizations concerning the evaluation and treatment of SSNHL [11,20]. The prognosis for SSNHL is reasonably well, especially if it is a high- or low-frequency hearing loss pattern; nevertheless the prognosis is poor in patients whose profound hearing loss across all frequencies [21]. Previous studies showed rates of hearing recovery following audiogram within the first few days of onset is 87%, with a week, 87%, 2 weeks 52% and 10% or less after 3 months [22-28].

## Acupuncture Intervention

Previous research showed interventions combining acupuncture with western medicine comprehensive treatment (WMCT) had more efficacious results in the treatment of SSNHL than western medicine comprehensive treatment alone [29]. Some researchers also confirmed the good effects in the treatment of SSNHL based on placebo-controlled trials [30,31]. Thus, earlier acupuncture interventions may lead to better prognosis. For Cases of SSNHL who took corticosteroid as therapy for at least 21 days but didn't improve, acupuncture can provide effective result [32].

## Discussion

According to traditional Chinese medicine theory, SSNHL is caused by wind-cold, wind-heat, hyperactivity of liver-fire, yin deficiency and yang excess, Qi stagnation and blood stasis and stagnation of phlegm-fire [33]. These factors are considered to disturb the Yin-Yang balance in humans' bodies, while acupuncture is a useful treatment to balance these imbalance conditions. The effective outcome of acupuncture may be the improvement of local blood circulation and promotion blood flow to the ear [34].

Previous research suggested that acupuncture performed by stimulating acupoints may enhance blood circulation and blood flow in the ear and simultaneously increase the oxygen supply of the ear. These could be the important factors which promote auditory recovery [29]. Besides, acupuncture can decrease blood viscosity, which might be a mechanism that acupuncture could treat SSNHL [35]. Some studies suggested that acupuncture at acupoints around the ear could reduce blood viscosity, improve lymph circulation, regulate the inflammatory response and promote the excitability and conductivity of the auditory nerve [29,30].

## Conclusion

Even though the mechanism of acupuncture is unclear, the combination of acupuncture and WMCT has better effectiveness than WMCT alone. In order to confirm the current findings regarding acupuncture as an intervention to SSNHL patients more RCTs and clinical evidence are appreciated.

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