

Herbal Formulas for Alleviating Symptoms of Tinnitus

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Abstract

Data on herbal treatments for tinnitus are sparse and unsatisfactory. Nonetheless, given that conventional treatments for tinnitus are not uniformly successful and definitely come with side-effects, experimenting with the use of safe herbal formulas may provide benefit for an individual even if the formulas only act randomly or primarily through a placebo effect. Herbs discussed include *Ginkgo biloba* (ginkgo), *Melissa officinalis* (lemon balm), *Aesculus hippocastanum* (horse chestnut) seeds, *Ruscus aculeatus* (butcher's broom) rhizome, *Astragalus membranaceus* (astragalus) root, *Panax ginseng* (Chinese ginseng) root, and *Rehmannia glutinosa* (rehmannia).

Introduction

Tinnitus is typically described as the perception of sound in the absence of external acoustic stimulation. Patient symptoms range from minor to debilitating. The perceived sounds vary from whistling or humming to complex sounds of music. Sounds may be perceived in one or both ears and may be sensed as coming from within the head or outside the body. These sounds, with rare exceptions, are only heard by the patient.

There are many, varying causes of tinnitus, ranging from acute acoustic trauma (explosions or gunfire) to ototoxicity as a side-effect of many drugs. (See Causes of Tinnitus) Tinnitus is estimated to be a quite common disorder but one that only rarely has a severe effect on a patient's life. The American Tinnitus Association estimates that ~ 17% of the U.S. population has experienced tinnitus but, on average, only 1%–2% have a debilitating variety of the ailment. Drug treatments include cortisone, vasodilators, benzodiazepines, lidocaine, and spasmolytic drugs. Anticonvulsants are used, as are antidepressants. Canlon et al. state: "At present, there is no general treatment for tinnitus, but there are several treatments that can alleviate or reduce the symptoms in some patients."¹

Information on herbal treatments for tinnitus is quite sparse and unsatisfactory. In our own practices as well as in informal surveys of other professional herbalists, we have not seen nor heard of consistent claims of success with using herbs to treat tinnitus. Nonetheless, given that conventional treatments for tinnitus are not uniformly successful and definitely come with side-effects, we are undertaking a review of potential herbal treatments. This is an area where experimenting with using safe herbal formulas may benefit individual patients even if such formulas only act randomly or primarily through a placebo effect.

Moreover, it appears that we might benefit by moving away from the search for a single tinnitus remedy and, instead, look for formulas that address a broader range of issues: That is, an elderly person may benefit from a cerebral blood-flow stimulant, an antianxiety herb, and a venous tonifier, while a younger person might benefit more from antidepressant herbs combined with adaptogens.

Ginkgo the "Go-To" Herb

The go-to herbal treatment for tinnitus is the herb *Ginkgo biloba* (ginkgo), in the form of a standardized leaf extract. While there are reports that the leaves of the ginkgo tree have a history of medicinal use in Chinese medicine, the way in which ginkgo is used as a cerebral circulatory stimulant and a treatment for tinnitus is based on German research into a very concentrated extract that bears virtually no resemblance to the use of a tea, tincture, or powder of the leaf.

A 2004 Cochrane review of the use of ginkgo in tinnitus was largely unfavorable.² This review looked only at studies in which tinnitus was the primary presenting complaint or in which subjects who were diagnosed with cerebral insufficiency had tinnitus recorded as both the defining feature and an outcome measure for treatment. The initial screening uncovered more than 200 studies, 7 of which had tinnitus as the primary complaint and 7 of which involved cerebral insufficiency with tinnitus as a defining criterion. Ultimately, only 3 studies satisfied the first criterion and met the various design criteria;

Causes of Tinnitus

- Hearing loss, age-related
- Hearing loss, noise-related
- Otosclerosis
- Ménière's disease
- Ear infections
- Drug side-effects, for example: aspirin, quinine, diuretics, and tricyclic antidepressants
- Head injuries
- Hypertension

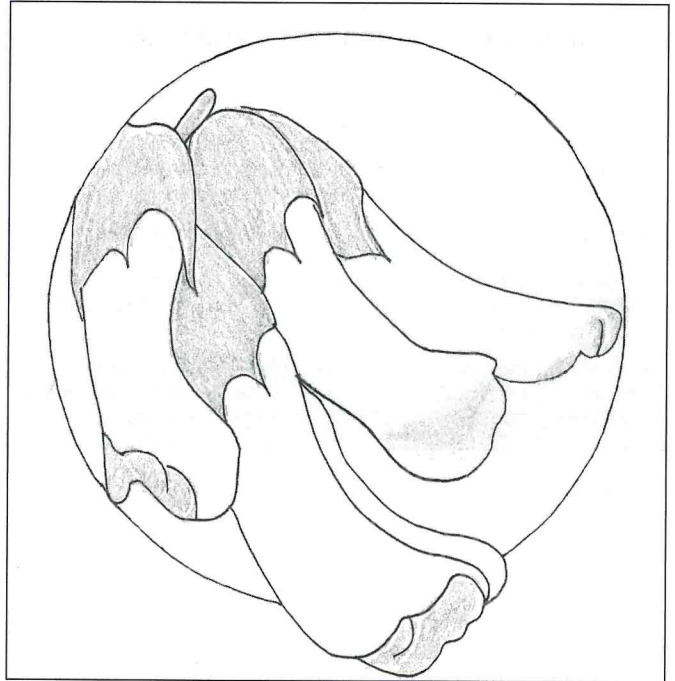
none of the studies on tinnitus in cerebral insufficiency met the quality standards of the review. The reviewers did comment, however: "Although the standard of the trials falls well below that which would allow inclusion in the review as evidence of an effect, it is salient to note that the majority of these trials do report an improvement in tinnitus."²

Similarly, another review noted that ginkgo appeared to benefit patients who had tinnitus but, again, found the studies lacking in methodological quality.³ In the 3 studies included in the Cochrane review, patients took 120–150 mg of standardized ginkgo for 12 weeks. Two showed no differences between the active and the placebo group. One showed a small, nonsignificant improvement in the treatment group.²

The Cochrane review suggested that stringent criteria need to be applied, especially when considering tinnitus, because "studies suggest a strong placebo effect in this disorder." This comment was supported by a study of 25 patients with tinnitus in which 25%–40% of the volunteers (6–8 patients) responded to placebo, sometimes improving and sometimes worsening.*

Moreover, although the studies may be flawed, there is much to indicate that, for at least a subset of patients, ginkgo will provide some degree of relief from tinnitus. Ginkgo is known to have free-radical scavenging properties, to increase blood flow, and antagonize platelet-activating factor, and appears to protect people against hypoxic brain injury from cerebral ischemia. The herb appears to have positive effects on electroencephalographic patterns in the brains of elderly patients with cerebral insufficiency, and the German Commission E has approved ginkgo's use for symptom relief in cases of cerebral insufficiency with symptoms of tinnitus.⁴

In addition, ginkgo appears to improve mood in this patient group. In a 4-month study of 5028 older volunteers, ginkgo supplementation improved activities of daily living, mood, and sleep.⁵ A subset of these patients ($n = 1570$) then continued in another arm of the study in which they elected whether to continue active treatment or not. Those who continued tak-



Astragalus membranaceus (astragalus). Drawing © 2012 by Kathy Abascal, BS, JD, RH (AHG).

ing ginkgo continued to improve in areas concerning anxiety, depression, energy, drowsiness, sadness, happiness, alertness, clumsiness, dizziness, and fatigue. This improvement was directly related to the duration of treatment (120 mg/day for 4, 6, and 10 months) with the longest treatment associated with the greatest reports of mood improvement.⁶ Ginkgo's effect on depression, anxiety, and other aspects of mood is important in tinnitus because there is a correlation between this disorder and mood.

The Mood Component in Tinnitus

Studies indicate that patients with tinnitus have a significantly higher prevalence of depression, including major depression. Although this is not statistically significant, there also appears to be an increased incidence of phobic anxiety, panic attacks, and alcohol dependence. One study found the prevalence of mood disorders higher in patients with tinnitus compared to those with psychogenic dizziness and much higher than people in the general population. Overall, nine of ten studies found a higher prevalence of depression in patients who had tinnitus. Although it is more difficult to state this with assurance, it appears that a higher prevalence of anxiety is also present in this patient population.⁷

It is also clear that tinnitus does not uniformly cause depression or anxiety. It has been hypothesized that, because serotonin is involved in modulation of sensory processing in the primary auditory cortex, dysfunction of the serotonergic system during depression increases awareness of tinnitus.⁸ Based on this, some work has been done using treatments for depression and/or anxiety to alleviate some forms of tinnitus.

*As an aside, it does seem that the standards applied to show a strong placebo effect in tinnitus were somewhat less-demanding than those required to show whether ginkgo had an effect on tinnitus.

Ingredients for 3 Traditional Asian Formulas

- Eight Flavor formula—*Rehmannia glutinosa* root-preparation, *Cornus officinalis* fruit, *Dioscorea opposita* rhizome, *Alisma orientalis* rhizome, *Paeonia suffruticosa* root-bark, *Poria cocos* fungus, *Phellodendron chinense* bark, *Anemarrhena asphodeloides* rhizome, botanical wax, and talc
- Er Long Zuo Ci Wan formula—Magnetitum (magnetic iron ore), *Rehmannia glutinosa* root, *Cornus officinalis* fruit, *Paeonia suffruticosa* root bark, *Dioscorea opposita* rhizome, *Poria cocos* fungus, *Alisma orientalis* rhizome, and *Bupleurum chinensis* root
- Er Ming Fang (EMF01) formula—*Rehmannia glutinosa*, *Cornus officinalis*, *Salvia miltiorrhiza*, *Pueraria* spp., *Schisandra chinensis*, *Poria cocos*, and *Platycodon grandiflorum*

Unfortunately, using antidepressant drugs to treat tinnitus is fraught with problems, because there are also numerous case reports showing that antidepressant drugs coincide with the occurrence of tinnitus.

The research in this area is well-summarized in a review article that urges better research on the use of psychoactive medications and tinnitus.⁷ This is an area where herbs may truly shine. There are many high-antioxidant, free-radical scavenging herbs that have a positive effect on mood and no reported connection with tinnitus. It follows that it would be well worth it to include these herbs in a formula designed for the individual's specific needs.

Ginkgo's potential importance for elderly patients with tinnitus seems rather clear, based on studies showing that, in these patients, both mood and memory improved with prolonged, regular use of ginkgo.⁶ In younger individuals, where cerebral circulation is likely to be less of an issue, other nervine herbs should be evaluated as being potentially more helpful. One must bear in mind that giving a nervine, such as *Melissa officinalis* (lemon balm), to an anxious elderly patient may help that patient's mood and indirectly alleviate any tinnitus symptoms that may be present.⁹

Venous Tonifying Herbs

There are tenuous suggestions that adding venous tonifying herbs to tinnitus treatments may be useful.¹⁰ In a study of 68 hearing-impaired patients, one group took a daily dose of 125 mg of aescin and 2250 mg of troxerutin, while the control subjects took 600 mg of pentoxifylline for 6 weeks. Hearing improved significantly in the flavonoid group.¹⁰ Aescin is one of many saponins in *Aesculus hippocastanum* (horse chestnut) seeds. Rutin is a very common flavonoid. Flavonoids, such as those found in horse chestnut or *Ruscus aculeatus* (butcher's broom) have a well-established record of benefit for patients who have venous insufficiency.⁹

One of the reasons that ginkgo is expected to be of benefit in tinnitus is because it improves cerebral circulation. It makes sense that adding herbs in a regimen to enhance venous return may improve ginkgo's effect significantly. In younger patients with the condition, in whom more adequate blood flow to the



Astragalus.

brain may lessen the impact of ginkgo, working, instead, on enhancing venous circulation and reducing edema is theoretically more sound.

Tonics and Adaptogens

Astragalus membranaceus (astragalus) root reportedly has been used as a treatment for deafness for centuries in Traditional Chinese Medicine.¹¹ It appears that the Korean government has been using astragalus as a treatment for acute acoustic trauma (AAT) since at least 2005. AAT is a hearing-impairment that occurs in soldiers who are exposed to firearm shots. The resultant tinnitus is, in large measure, attributed to the increase in cochlear reactive oxygen species after mechanical damage to the organ of Corti.¹¹ In one Korean study available in English, soldiers were treated with intravenous injections of astragalus. One of the benefits was a reduction in tinnitus. The study dose was an injection of 0.5 mL/kg per day for 10 days, with a 10 mL dose being equivalent to 20 g of crude drug.¹¹ It is not possible to calculate an equivalent oral dose based on these data, but it would certainly be a large dose. A 100-lb individual would take 25 mL/day or the equivalent of 45 g of herb (~ 1.5 ounces). A second study, not available in English, found astragalus root protective against cisplatin ototoxicity in rats.¹²

There are also studies suggesting that adaptogens may be useful for treating tinnitus. An in vitro study found that ginsenoside Rb1 from *Panax ginseng* (Asian ginseng) root provided a significant degree of protection against ischemic damage to cochlear cells.¹³ A subsequent study found that Korean red ginseng (the steamed root of Asian ginseng) significantly attenuated cisplatin-induced increases in free radicals and had an antiapoptotic effect. The study specifically looked at the effects of the whole herb rather than isolated ginsenosides, because the whole herb is most frequently ingested that way.¹⁴

Given the general ability of adaptogens to reduce overall stress and improve health, it makes complete sense to add an adaptogen to the treatment protocol for a patient with tinnitus. In choosing adaptogens, one must remember to pay attention to the preference in some studies for astragalus.

Traditional Asian Formulas

Three similar Chinese formulas are reported to be useful for treating tinnitus. (See Ingredients for 3 Traditional Asian Formulas). *Rehmannia glutinosa* (rehmannia) root is included in all of these formulas. In Korea, the steamed rehmannia root is prescribed for a variety of inner-ear problems as well as for other symptoms, such as night sweats, headaches, and dizziness. In an in vitro study, a rehmannia extract protected HEI-OC1 cells from cisplatin damage. Pretreatment of those cells prevented lipid peroxidation dose dependently and increased free-radical scavenging.¹⁵ However, the Er Ming Fang formula administered by gavage to rats did not reduce salicylate-induced tinnitus significantly, despite reports that the formula did help reduce tinnitus in a small number of patients.¹⁶

Additional formulas and descriptions of some small studies of the use of these formulas are described in an article by Dharmananda.¹⁷ These treatments are certainly worth exploring, but, as we are not well-versed in many of these herbs and are not used to applying the diagnostic systems described in that article, these trials are not discussed in this article.

Conclusion

Tinnitus is a difficult condition. In fact, given its many different causes, it is probably not a single condition. This may well explain why no single treatment seems to consistently be useful for treatment. There are, however, strong indications that we might achieve some success in treating this disorder by approaching the problem from a variety of angles.

Thus, for elderly patients, a standardized ginkgo extract would be central because it enhances cerebral circulation, scavenges free-radicals, and improves mood. Building a formula that includes a venous tonifier, such as butcher's broom or horse chestnut; an adaptogen such as ginseng; and a nervine selected for the patient's individual mood issues might work better than ginkgo alone. In a younger individual, ginkgo might be elimi-

nated, with more emphasis placed on the tonic astragalus, an adaptogen, and nervines. ■

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