

Effect of Korean Medicine on Tinnitus with Hearing Loss: A Case Series

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ABSTRACT

Objective: This study describes the clinical effects of treatment with Korean medicine on patients with tinnitus accompanied by hearing loss.

Methods: Three patients with tinnitus who had not received conventional medical treatment were treated at Sejong Korean Medicine Clinic in Seoul, Korea. The interventions included acupuncture, acupotomy of the suboccipital and cervical muscles, cervical/thoracic vertebrae, and TE-17 (Yifeng) near the styloid process along with herbal pharmacopuncture. Additional treatments included acupuncture stimulation of the nasal mucosa, cranial rhythmic impulse technique, Chuna manual therapy for spinal balance, auditory rehabilitation training, and sound-based brain stabilization therapy. The outcomes were evaluated using Pure-Tone Audiometry (PTA) and Minimum Masking Level (MML) test.

Results: All three patients showed clear improvement in PTA thresholds and a reduction in tinnitus severity as assessed by MML test.

Conclusion: Korean medicine may provide an effective complementary therapeutic option for managing tinnitus with hearing loss, particularly when conventional medical treatments are limited.

Keywords: Tinnitus, Hearing loss, Korean medicine, Acupuncture, Case report, Acupotomy

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INTRODUCTION

Tinnitus is the perception of sound in the absence of an external auditory stimulus¹. Its etiologies are diverse, including sensorineural hearing loss; use of ototoxic medications such as non-steroidal anti-inflammatory drugs, aminoglycoside antibiotics, and anticancer agents; prolonged noise exposure; head trauma; multiple sclerosis; vestibular schwannoma; other dental diseases; psychological stress; and depression. In addition, tinnitus frequently accompanies otitis media, Ménière's disease, and labyrinthitis².

The clinical manifestations of tinnitus vary widely. Patients may describe tinnitus as the sound of cicadas, insects, wind, fans, machinery, or high-pitched whistles. These heterogeneous auditory experiences not only cause physical discomfort but also result in significant psychosocial burden, including emotional distress and reduced quality of life. Severe tinnitus is often associated with additional symptoms such as hearing loss, hyperacusis, auditory hallucinations, insomnia, depression, Eustachian tube dysfunction, headache, and dizziness³.

Epidemiological studies have estimated the prevalence of tinnitus at approximately 10%–15% of the adult population. Prevalence increases with age, peaking between 60 and 79 years before declining⁴. The underlying pathophysiology of tinnitus remains unclear despite numerous hypotheses, and standardized diagnostic and therapeutic guidelines have yet to be established⁵.

In this context, alternative treatment approaches such as Korean medicine may be effective. This study reports three clinical cases of patients with tinnitus accompanied by hearing loss who received treatment with Korean medicine at the Sejong Korean Medicine Clinic in Songpa, Seoul. Significant improvements were observed in pure-tone audiometry (PTA) and minimum masking level (MML) outcomes.

CASE REPORTS

Study subjects

The study included patients with tinnitus accompanied by hearing loss who visited Sejong Korean Medicine Clinic in Songpa-gu, Seoul. Among these, patients who underwent magnetic resonance imaging, computed tomography, and ultrasonography at tertiary hospitals to evaluate conditions known to cause tinnitus—such as tumors, arteriovenous malformations, atherosclerosis, and

venous hum—were determined to have no abnormalities. Three patients who did not receive any conventional medical treatment were selected to assess the effect of Korean medicine as a standalone treatment.

Evaluation criteria

Hearing was evaluated by measuring pure-tone air-conduction thresholds once a month using the AMA-PTA microautomatic audiometer (Earlogic Korea). Hearing loss was calculated using the six-frequency method (Equation 1), in which the threshold values at 500, 1000, 2000, and 4000 Hz were summed, with 1000 and 2000 Hz each counted twice, and the average of the six values was derived. The degree of hearing loss was classified according to the International Organization for Standardization (ISO) classification criteria for hearing impairment (**Table 1**). Tinnitus severity was evaluated by measuring the MML once a month.

Equation 1. Six-frequency method

$$\frac{500\text{Hz} + 2(1000\text{Hz} + 2000\text{Hz}) + 4000\text{Hz}}{6}$$

1) Patient information

The patient was a man in his late 50s. Tinnitus developed approximately 3 months after cholecystectomy in December 2022, and he first visited our clinic on July 12, 2024.

From July 12 to October 7, 2024, the patient was administered Korean medicine treatment and followed-up clinically.

2) Patient symptoms, medical history, and diagnostic evaluation

Tinnitus began in February 2023 and was localized to the left side. The patient reported that the perceived sound was louder at the vertex of the head rather than in the ear itself. He described the tinnitus as resembling the sound of wind; when severe, the patient felt as if the sound was also present on the right side. He stated that the tinnitus was most pronounced upon waking in the morning. However, when the sensation of head heaviness was severe, he did not perceive the sound of tinnitus.

Additional symptoms included nasal obstruction, cough, and other rhinitis-related symptoms, as well as a deviated nasal septum. His medical history included hypertension and hyperlipidemia, for which he was taking conventional medications. His surgical history included a cholecystectomy.

Table 1. 1964 ISO standard.

Hearing Loss Range	Corresponding Audiometric ISO Value
Normal Limits	≥25 dB
Mild Hearing Loss	26–40 dB
Moderate Hearing Loss	41–55 dB
Moderately Severe Hearing Loss	56–70 dB
Severe Hearing Loss	71–90 dB
Profound Hearing Loss	≥91 dB

3) Therapeutic interventions

(1) Acupuncture therapy: Sterile disposable needles (0.25 × 40 mm, Dana Medical Co Ltd, 135-20, Hanamsandan 7beon-ro, Gwangsan-gu, Gwangju, Republic of Korea) were used. Treatment primarily targeted the suboccipital muscles, C2 spinous process, C1–C4 transverse processes, the area surrounding the styloid process, and the trapezius muscle. The cervical and thoracic facet joints were palpated to identify tender points, which were then treated. Tensor and levator veli palatini muscles were also treated.

(2) Electroacupuncture, magnetic acupuncture stimulation, and low-frequency electrical stimulation: Electrical and magnetic stimulation was applied to some inserted needles to relieve muscle tension. Electrical stimulation at 4 Hz was applied to the trapezius muscle for 15 min, and magnetic acupuncture stimulation [WHATA153, Medilab Co Ltd, 47, Hongneung-ro, Dongdaemun-gu, Seoul, Republic of Korea] was applied to the suboccipital muscles for 20 min.

An interferential low-frequency electrical stimulation device (GP-500H, Goodpl Co Ltd, 107, Donghwagongdan-ro, Munmak-eup, Wonju-si, Gangwon-do, Republic of Korea) was applied around the trapezius muscle at 5000 Hz for 15 min.

(3) Acupotomy therapy: A 0.35 × 40-mm acupotomy needle (Maanshan Bond Medical; imported by the Korean Acupotomy Education Institute, 1358 Meishan Rd, Yushan District, Maanshan, Anhui, China) was used once weekly. To target the ear-related nerves—including the vagus, glossopharyngeal, and facial nerves (chorda tympani nerve and geniculate ganglion)—the anterior and posterior aspects of the styloid process [Yifeng (TE17)] were treated with acupotomy needle. To target the superior cervical ganglion, the sternocleidomastoid muscle and the transverse processes of C1–C4 were treated.

(4) Pharmacopuncture: Cheongeum pharmacopuncture (AJ Tangeon) was injected using 30G × 38-mm needles, with 0.5 cc administered bilaterally at Yifeng (TE17).

(5) Nasal bloodletting therapy: Bloodletting was performed on the edematous mucosa of the nasal conchae using a nasal speculum with sterile needles (0.40 × 90 mm; Dongbang Medical Co Ltd, 9-22, Pangyo-ro 255beon-gil, Bundang-gu, Seongnam-si, Gyeonggi-do, Republic of Korea).

(6) Chuna manual therapy and CS therapy: The cranial rhythmic impulse technique and sacral adjustment were applied once weekly to relieve tension in the suboccipital muscles and promote the circulation of cerebrospinal fluid. Chuna manual therapy was applied to the cervical and thoracic spine based on the diagnostic methods of the Do-In An-Gyo Society.

(7) Sound rehabilitation therapy: Based on the results of PTA performed with the AMA-PTA micro automatic audiometer (Earlogic Korea), sound stimuli were generated to stimulate frequencies with elevated hearing thresholds using the AMA-MTM REV134 device (Earlogic

Korea, 24, Jeongbalsan-ro, Ilsandong-gu, Goyang-si, Gyeonggi-do, Republic of Korea).

The patient was instructed to listen to these sound stimuli below the hearing threshold twice daily for 30 min per session, for a total of 1 h per day.

(8) Electroencephalogram stabilization therapy: The Brain-On device (Brainon Medical Inc, 18, Buil-ro 233beon-gil, Wonmi-gu, Bucheon-si, Gyeonggi-do, Republic of Korea) was used for 30 min for electroencephalogram (EEG) stabilization.

4) Treatment outcomes and follow-up results

Treatment was administered three times per week from July 12, 2024, to October 7, 2024.

Outcomes of PTA, six-frequency method, and MML test (Table 2 and 3; Figure 1 and 2) were measured once monthly. Overall, hearing improved in both the left and right ears. In particular, the masking level decreased by 15 dB, from 74 dB on July 12 to 59 dB on October 7. The patient also reported that the subjectively perceived loudness of tinnitus had decreased by approximately 50%.

Case 2

1) Patient information

The patient was man in his late 50s who first developed tinnitus in 2018. In early April 2024, he visited our clinic due to tinnitus that persisted continuously for 24 h.

Accordingly, Korean medicine treatment and follow-up observation were conducted for this patient from April 19, 2024, to July 24, 2024.

2) Patient symptoms, medical history, and diagnostic evaluation

The bilateral tinnitus that began in 2018 occurred intermittently and did not cause significant discomfort. However, in early April 2024, the tinnitus suddenly became continuous. It was described as a combination of a high-pitched “beeping” sound and a “cicada-like” sound. The patient reported that the tinnitus was louder in the right ear than in the left, and its intensity increased particularly before bedtime, making it difficult to obtain restful sleep.

Additional symptoms included facial twitching that began around October 2023, rhinitis symptoms such as rhinorrhea and sneezing, and a history of cervical spine surgery due to cervical disc disease.

3) Therapeutic interventions

The therapeutic interventions were the same as those described in Case 1.

4) Treatment outcomes and follow-up results

Treatment was administered three times per week from April 19 to July 24, 2024.

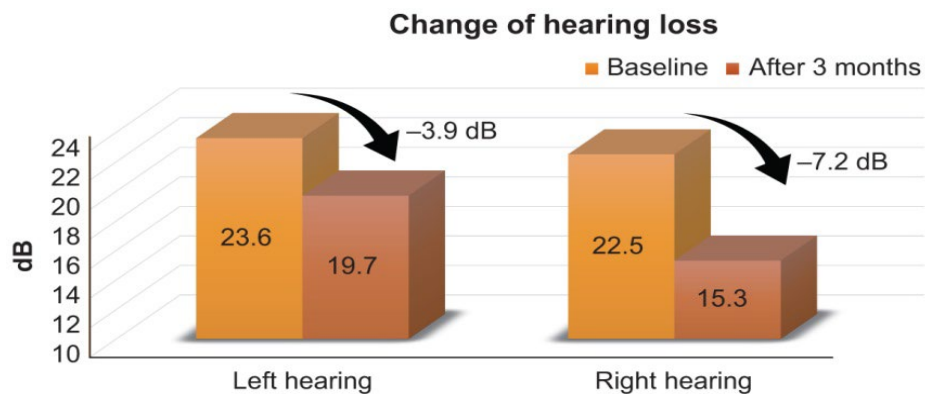
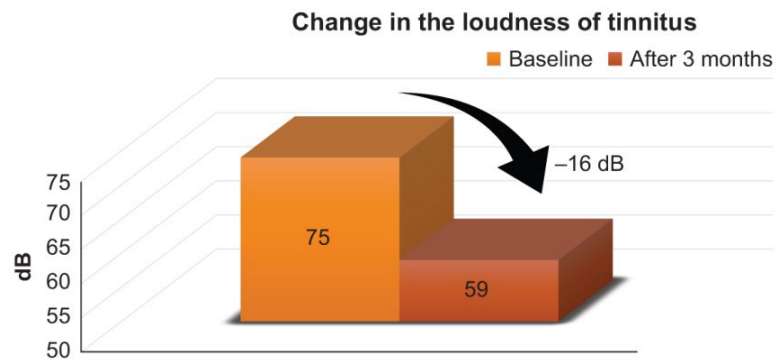
Outcomes of PTA, six-frequency method, and MML test (Table 4 and 5; Figure 3 and 4) were measured once monthly. Overall, hearing improved in both the left and

Table 2. Results of Patient 1's left hearing test.

Date	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	8000 Hz
24.7.12	20.4	15.3	10.8	23.6	57.0	64.0
24.8.10	21.1	11.4	6.9	23.1	58.0	60.5
24.9.25	18.9	12.2	7.5	18.3	56.0	57.0
24.10.7	13.9	9.7	5.3	19.7	51.0	54.0

Table 3. Results of Patient 1's right hearing test.

Date	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	8000 Hz
24.7.12	24.6	17.5	12.5	22.5	41.0	53.5
24.8.10	21.1	15.8	11.4	22.5	40.5	52.5
24.9.25	21.4	13.9	9.7	21.4	42.5	52.0
24.10.7	21.1	13.3	9.2	15.3	38.5	49.0

**Figure 1:** Results of Patient 1's six-frequency method.**Figure 2:** Results of Patient 1's minimum masking level test.**Table 4.** Results of Patient 2's left hearing test.

Date	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	8000 Hz
24.4.19	22.5	20.8	21.9	36.9	58.0	87.5
24.5.20	18.2	15.8	17.5	34.2	59.5	83.0
24.6.18	23.9	15.3	17.5	33.3	56.0	70.5
24.7.24	15.4	10.6	16.9	31.1	55.0	72.5

Table 5. Results of Patient 2's right hearing test.

Date	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	8000 Hz
24.4.19	21.8	16.4	21.1	41.4	61.0	79.0
24.5.20	21.1	15.8	18.6	40.3	61.0	79.0
24.6.18	25.4	14.2	18.6	35.0	59.5	81.5
24.7.24	6.1	11.9	16.4	31.4	57.0	74.5

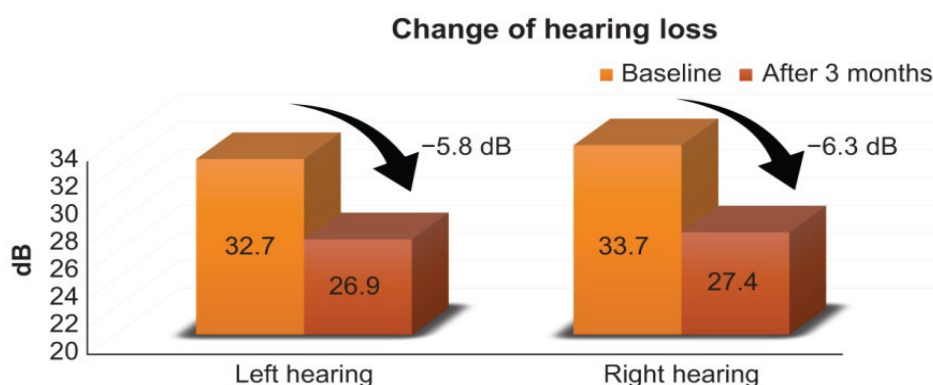


Figure 3: Results of Patient 2's six-frequency method.

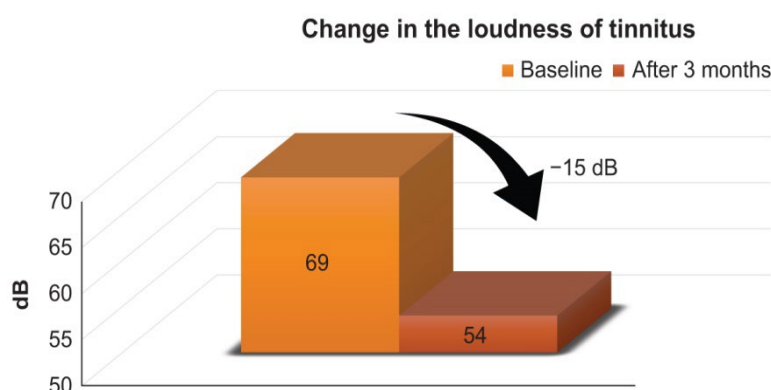


Figure 4: Results of Patient 2's minimum masking level test.

right ears. The masking level decreased by 15 dB, from 69 dB on April 19 to 54 dB on July 24. The patient also reported that the subjectively perceived loudness of tinnitus had decreased by more than 60% on average by the final month of treatment.

Case 3

1) Patient information

The patient was a man in his mid-40s. Tinnitus developed approximately 2 months after the onset of patulous Eustachian tube dysfunction in October 2021. The patient visited our clinic on August 21, 2023.

Accordingly, Korean medicine treatment and follow-up observation were conducted for this patient from August 21, 2023, to March 11, 2024.

2) Patient symptoms, medical history, and diagnostic evaluation

Tinnitus began in December 2021. The patient reported that the tinnitus was usually not noticeable, but when he focused on it, it sounded similar to a cicada. In addition to tinnitus, the patient complained of discomfort related to patulous Eustachian tube dysfunction.

Regarding the patulous Eustachian tube, the patient experienced a sensation of fullness of the ear and clicking sounds in both ears during conversation. The patient reported that autophony was particularly induced when he was at higher altitudes. At those times, changing the

head position (such as lowering the head or massaging the neck area) reduced the symptoms of autophony.

Additional symptoms included rhinitis-related symptoms such as nasal congestion and rhinorrhea.

3) Therapeutic interventions

The therapeutic interventions were the same as those described in Case 1.

4) Treatment outcomes and follow-up results

Treatment was administered once or twice per week from August 21, 2023, to March 11, 2024.

Outcomes of PTA, six-frequency method, and MML test (Table 6 and 7; Figure 5 and 6) were measured once monthly. Because of the patient's occupation and place of residence, assessments could not be performed at regular intervals, unlike in the previous two cases.

Results showed that left-ear hearing tended to decline until November but improved in the final assessment. Hearing in the right ear similarly showed a declining trend at the 1-month follow-up but improved in later assessments. The masking level was maintained or showed a decreasing trend even during periods when hearing thresholds declined.

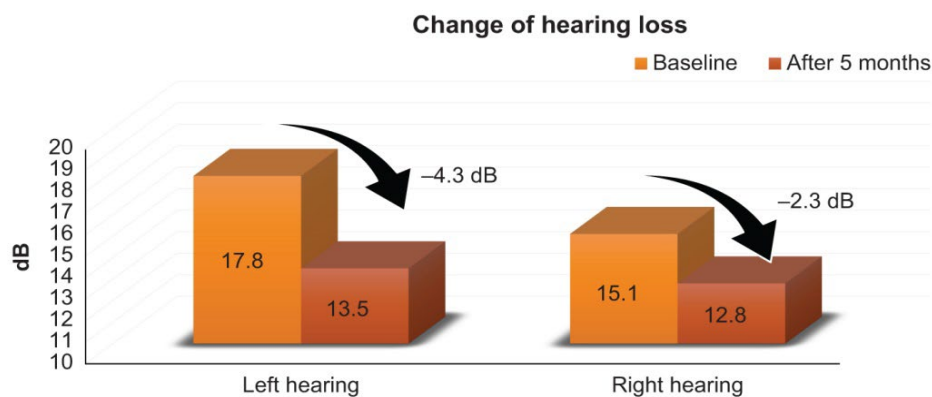
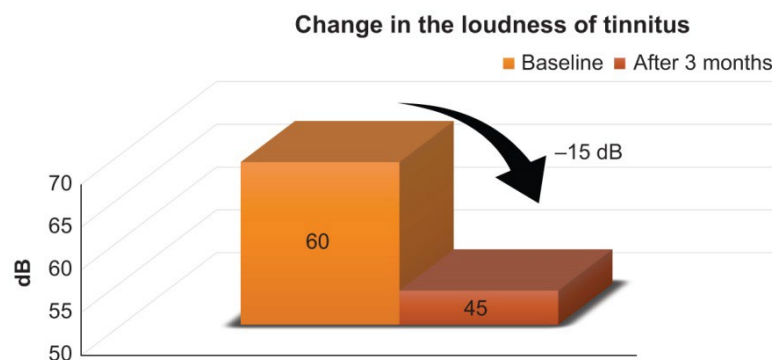
Although the discomfort associated with patulous Eustachian tube dysfunction could not be measured using relatively objective methods such as PTA or MML test, the patient reported a marked reduction in subjective discomfort.

Table 6. Results of Patient 3's left hearing test.

Date	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	8000 Hz
23.8.21	14.6	6.4	1.7	20.0	39.0	36.5
23.9.25	13.2	8.6	6.7	20.3	34.5	46.0
23.11.27	14.6	6.9	1.9	23.6	40.0	37.5
24.3.11	16.4	4.2	1.9	19.2	34.5	34.5

Table 7. Results of Patient 3's right hearing test.

Date	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	8000 Hz
23.8.21	19.3	8.6	6.7	18.1	32.5	40.5
23.9.25	17.5	9.7	5.3	21.4	39.0	32.5
23.11.27	14.6	5.3	1.9	17.5	31.5	44.5
24.3.11	14.6	4.2	2.5	18.1	31.5	41.5

**Figure 5:** Results of Patient 3's six-frequency method.**Figure 6:** Results of Patient 3's minimum masking level test.

DISCUSSION

Tinnitus is defined as the perception of sound in the absence of an external auditory stimulus⁶. Epidemiological studies have estimated the prevalence of tinnitus at approximately 10%–15% in the adult population⁴. Tinnitus is caused by damage to auditory cells resulting from factors such as noise exposure, ototoxic medications, auditory nerve tumors, and aging⁷. Hearing loss is the most common symptom observed in patients with tinnitus and is also an important risk factor. Generally, PTA demonstrates elevated hearing thresholds, particularly in the high-frequency range⁸. Therefore, this study focused on subjects with tinnitus accompanied by hearing loss after excluding other underlying conditions that could independently cause tinnitus.

Numerous studies have investigated the effects of acupuncture⁹. Acupuncture can improve local blood circulation and promote blood flow around the ear, providing benefits for tinnitus and hearing loss¹⁰. In particular, acupuncture targeting specific acupoints is believed to enhance blood circulation and flow within the ear and increase oxygen supply, which can help promote auditory recovery¹¹.

Various acupoints can be used for tinnitus and hearing loss; common points include Tinghui (GB2), Fengchi (GB20), Tinggong (SI19), Ermen (TE21), and Yifeng (TE17)¹¹. In this study, Fengchi (GB20) and Yifeng (TE17) were utilized. Fengchi (GB20) is associated with the suboccipital muscles, while Yifeng (TE17) is associated with the vagus, glossopharyngeal, and facial nerves

(including the chorda tympani nerve and geniculate ganglion).

The suboccipital muscles form the suboccipital triangle, through which the vertebral artery and suboccipital nerve pass. The vertebral artery is crucial because it supplies blood to the cranial nerves. Hwang et al. reported that the facial nerve, vestibulocochlear nerve, glossopharyngeal nerve, and cervical plexus mutually influence one another¹².

To relieve compression of the cervical ganglia and cervical plexus, treatment was applied to the transverse processes of C1–C4 and the cervical muscles. Cranial rhythmic impulse technique was used to relieve tension in the suboccipital muscles, and Chuna manual therapy was employed to improve spinal balance.

Rhinitis also affects the Eustachian tubes and inner ear, potentially inducing tinnitus¹³. In the cases presented herein, patients indeed exhibited rhinitis-related symptoms. Therefore, we performed nasal bloodletting therapy to stimulate the nasal mucosa and promote regeneration.

Research on sound rehabilitation therapy and EEG stabilization therapy remains scarce, necessitating further detailed investigations.

Most patients with tinnitus in Korea visit conventional medical hospitals, making it difficult to assess the effectiveness of Korean medicine as a standalone treatment. Moreover, many patients without severe hearing loss or underlying diseases are often told that “there is nothing that can be done” or that they “must simply live with it,” which may discourage them from seeking alternative treatments¹⁴. For these reasons, the present study has limitations such as its small sample size, restricting our ability to draw definitive conclusions regarding the effectiveness of Korean medicine as a standalone treatment for tinnitus. Therefore, further studies on Korean medicine-based monotherapy for patients with tinnitus are warranted.

CONCLUSION

Korean medicine treatments, including acupuncture, acupotomy, pharmacopuncture, cranial rhythmic impulse technique, and auditory rehabilitation, may alleviate tinnitus symptoms and improve hearing thresholds. Further large-scale, controlled studies are needed to confirm the efficacy and reproducibility of the method.

Disclaimers

The authors declare that there are no conflicts of interest.

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Data availability statement

The datasets used and/or analyzed during the current study are available from the corresponding author on reasonable request.

Author contributions

The author confirms sole responsibility for all aspects of the work, including study conception and design, data collection, analysis and interpretation of results, and manuscript preparation. The author's contributions include conceptualization, methodology, investigation, data curation, formal analysis, validation, visualization, project administration, writing – original draft, and writing – review & editing.

Ethical considerations

This study was reviewed and approved for an exemption by the Institutional Review Board of Sangji University Korean Medicine Hospital (IRB No. SJIRB-Human-25-013).

Consent to participate

Informed consent for participation and publication of clinical details was obtained from all individual patients included in this case series.

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