

Laser Therapy in Ear Disorders



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Case Study - Tinnitus

“It’s interfering with my ability to pick out words clearly,” said my 44 year old patient. “Andrea” was commenting on intense tinnitus in both ears she had been experiencing for many years. She rated its intensity at 8 on a 0-10 scale. She also reported pain in her neck and jaw which she scored at 4. She was treated with laser therapy and acupuncture.

Following the first treatment, neck pain was completely alleviated and tinnitus reduced by half. Following the second treatment, all tinnitus in the left ear and left-sided jaw pain were totally resolved. Following her 4th and last visit, she scored the remaining tinnitus in the right ear at 2 and right-sided jaw pain at 1. She observed that her comprehension of conversation had improved greatly and noted, “It’s amazing how quiet everything seems.”

A Specialty in Ear Disorders?

A growing number of clinics and practitioners worldwide are choosing to specialize in disorders of the ear, including tinnitus, hearing loss and Meniere’s disease with laser therapy as the leading modality. Laser therapy has had spectacular reviews in this area. Lutz Wilden writes, “..even serious impairments such as the most excruciating cases of tinnitus, dysacusia, morbus Menière and bradyacusia can be considerably alleviated and even healed with the aid of modern light technology and the corresponding medical management.”¹

What is Tinnitus?

Tinnitus is the perception of sound without an external cause. It may affect as many as 37 million adults in the United States.² Because of the high complexity of inner ear structures and nerve pathways, it may be impossible

¹ From http://www.dr-wilden.de/en_info/31.html.

² From <http://www.asha.org/public/hearing/disorders/Tinnitus.htm>

to pinpoint any single cause for someone's tinnitus. Yet three main sources of tinnitus have been proposed:

1. Muscular tension
2. Damage to the cochlea
3. Brain injury

The last has no known treatment, but the first two have been documented to respond positively to laser light at low intensity. Being able to determine whether tinnitus is due to muscular tension or cochlear damage, may allow one to choose the correct laser approach.

Muscular Tension

Can your patient change the pitch or intensity of the tinnitus by yawning or moving the head? If the answer is yes, then laser therapy to relax muscle tension in the neck, shoulder, or jaw may be all that is needed. Knowing that "Andrea", my patient in the case study at the beginning of this article, was able to change the pitch of the sound by moving her head up and down was a strong clue that muscle tension was a big part of the problem.

It is not always that easy. Muscular tension may be the body's legitimate response to a deeper problem which must be identified and addressed. Frequently, the culprit is dental malocclusion.³ If contact between the front teeth of the upper and lower jaws is too strong, the mandible may be forced backward, placing stress on the temporomandibular joint, and tinnitus and/or pain may result. In this case referral to a dentist to adjust the bite will be necessary.⁴

Cochlear Damage

The cochlea is an important sound processing structure shaped like a snail shell deep in the inner ear. Acoustic trauma may damage delicate hair cells within the cochlea and the fine nerves interconnected with them. These nerves may then send impulses to the brain which it interprets as sound. Cochlear damage is frequently the result of acoustic trauma.

³ Tuner, Jan, *Low level laser therapy of tinnitus – a case for the dentist?*, Swedish Laser Medical Society, www.laser.nu

⁴ Tuner, Jan, in an oral presentation on laser therapy in tinnitus sponsored by the Swedish Laser Medical Society, 6/4/07, Stockholm, Sweden.

Administering treatment directly into the ear is the preferred method of laser therapy in this kind of tinnitus and has received great reviews. *It is strongly advised that both ears be treated simultaneously in order to prevent vertigo.* Irradiation directly into the ear should not be attempted with a laser single probe but rather with devices designed specifically for this purpose with twin laser diodes, one for each ear.

What can patients expect? Lutz Wildren writes, “First the patients experience an amelioration of their hearing capacity. Then the symptoms sensation of pressure in the ear and vertigo improve, and finally the ringing in the ears (= tinnitus) changes its property; having first become unsteady in volume, tone quality and frequency (which often gets higher and higher) and more easily assignable to corresponding stressors, it gradually thins down and recedes further and further into the background, until it eventually disappears for good.”⁵

Case Study - Meniere’s Disease, Hearing Loss

“Lottie” was a 76 year old female diagnosed with Meniere’s disease whose chief complaint was severe, sudden episodes of vertigo, once while driving. Tinnitus and a sense of pressure were greater on the left side, and she reported deafness in that ear. Low level laser therapy was administered into the acoustic openings in both ears simultaneously. Prior to the 2nd treatment, she said, “I have had almost no dizziness.” Before her 3rd session, she noted, “I’ve had no attacks.” After her fifth session, “It’s a miracle. Everything feels great.” During her 15th visit, she reported that she could hear in the left ear once again.

How effective is this treatment?

- In a study of 348 patients, Lutz Wildren reported that the hearing capacity of those receiving laser therapy directed into both ears simultaneously increased by 20.6% on average. How much hearing improved correlated with the patients’ age and the duration of the condition.⁶

⁵ From http://www.dr-wilden.de/en_info/34.html

⁶ Wilden, Lutz *Report on more than eight years of low level laser therapy of chronic inner ear diseases.* The IXX Annual Meeting of The American Society for Laser Medicine and Surgery, Lake Buena Vista, Florida. April 16-18, 1999. Lasers in Surgery and Medicine. Supplement 11, 1999.

- In a study by Miroslav Prochazka, more than half of all patients reporting significant and/or total relief of tinnitus (30.6 + 22.2 = 52.8 per cent).⁷

Bioelectromagnetic Therapy

Bioelectromagnetic therapy⁸ is another energy based treatment reported to have significant positive effects in tinnitus and which may complement laser treatment. In a double-blind, placebo controlled trial of 58 patients with chronic tinnitus in which active and placebo devices were randomly assigned, “Forty-five per cent of the patients who completed the trial were improved by the active device, but only 9% by placebo.”⁹ Bogomil'skii et al treated 105 children with hearing loss with low-frequency electromagnetic fields and reported, “The method was found highly effective and valuable for wide practice.”¹⁰

Conclusion

Laser therapy has biostimulative and regenerative effects and has been documented to improve hearing, tinnitus and Meniere's disease. To view what researchers have written, visit www.healinglightseminars.com. Click on the ‘Laser Research Library’ and then on ‘Ear – Meniere's disease, Tinnitus’ and then on ‘Bioelectromagnetic Research Library’ and ‘Hearing Loss – Hypoacusis’ and ‘Tinnitus’.

Hearing loss is second only to low back pain as the most common physical disability in the U.S.¹¹ Anyone interested in treating ear disorders may wish to give serious consideration to developing this as a personal specialty. Much more information will need to be acquired than has been presented in this article. Yet once one has the knowledge, administering laser therapy for ear disorders may be the least labor intensive of all specialties one might choose.

⁷ Prochazka, Miroslav, *The Role of LLLT in Treatment of Tinnitus*, Laser Partner 26.2.2003

⁸ Bioelectromagnetic therapy is the application of electromagnetic fields to treat and prevent disease. It has been practiced in medicine for at least 60 years - and perhaps as long as we have been able to send current through wire. Thousands of studies have been performed with benefits reported in a wide variety of conditions. Modern bioelectromagnetic therapy is standard practice in eastern Europe as a primary or adjunctive therapy to address a great many conditions.

⁹ Roland NJ, Hughes JB, Daley MB, Cook JA, Jones AS, McCormick MS, *Electromagnetic stimulation as a treatment of tinnitus: a pilot study*. Clin Otolaryngol Allied Sci. 1993 Aug;18(4):278-81.

¹⁰ Bogomil'skii MR, Sapozhnikov IaM, Zaslavskii AIu, Tarutin NP, *The treatment of hypoacusis in children by using a pulsed low-frequency electromagnetic field* Vestn Otorinolaringol. 1996 Nov-Dec;(6):23-6.

¹¹ <http://www.clevelandclinic.org/health/health-info/docs/2700/2733.asp?index=10059>

Choosing a specialty can be a highly profitable and satisfying way to grow one's practice. Treating ear disorders is just one area among many with great potential to be explored. Laser and bioelectromagnetic therapies have been documented to help in a wide variety of conditions. Including these therapies within your practice may enhance what you are already doing. These therapies may also open new windows of opportunity. What specialty would be personally and financially rewarding and of service to your community?