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Hyperacusis and Misophonia The Lesser-Known Siblings of Tinnitus

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<http://www.minnesotamedicine.com/Past-Issues/Past-Issues-2011/November-2011/Hyperacusis-and-Misophonia>

■ Hyperacusis (decreased sound tolerance) and misophonia (fear of sound) are two conditions about which little is known. Consequently, physicians often struggle when they encounter patients who are affected by them. This article attempts to educate the medical community about hyperacusis and misophonia, both of which can have devastating effects on the lives of patients, and ways to manage them.

Hearing loss and tinnitus are the primary hearing-related reasons people seek help from physicians. There are, however, several lesser-known maladies that result in suffering and affect a person's quality of life. Among these are hyperacusis (decreased sound tolerance) and misophonia (dislike or fear of sound). The prevalence of these conditions is not well-documented; however, it is believed that between 10% and 17% of the population experiences tinnitus and of that population, 37% requires specific treatment for hyperacusis and misophonia.¹ Although there is no surgical or pharmacological cure for either hyperacusis or misophonia, there are treatments that can help a person tolerate normal sounds and learn to cope. Audiologists who specialize in tinnitus assessment and treatment can evaluate and treat patients with these conditions. This article describes cases of hyperacusis and misophonia that we have seen in our practice and presents some of what is currently known about these disorders.

A Case of Hyperacusis

Sue Smith is a professional cellist. While playing, she was exposed to an unexpected loud sound that came from a monitor directly in front of her. She immediately experienced reduced hearing, a feeling of aural fullness, and sensitivity to sound. Those sensations continued for six months. During that time, Sue stopped playing the cello and took a leave of absence from her orchestra job. She started wearing earplugs most of the day in anticipation of encountering sounds such as traffic noise, a referee's whistle at her son's hockey games, and the beeping of commercial vehicles backing up. Those sounds caused physical discomfort and pain in both ears. She also would anticipate offending sounds prior to their occurring; this made her fearful and anxious.

Sue initially was seen by an otolaryngologist who assessed the structural integrity of her auditory system and an audiologist who evaluated her hearing. She was diagnosed with acoustic shock, hyperacusis, and misophonia. She was referred to our clinic. She started tinnitus retraining therapy, during which she wore ear-level white-noise generators, devices that look like small behind-the-ear hearing aids, during all waking hours. She also was weaned off the hearing protection and began following a daily protocol to address the anxiety generated by her fear of

sound. After six months of treatment, Sue's sensitivity was restored to normal ranges, and she returned to playing in the orchestra.

■ What is Hyperacusis?

Hyperacusis is the subjective perception of increased volume of sounds; it manifests as physical discomfort and pain. Patients with this disorder can experience acute discomfort from sounds that occur at levels as low as 40 dB HL or that of soft speech. It is postulated that the disorder involves the limbic system because the patient's reaction to sound is so strong it triggers the fight-or-flight response.¹

In addition to experiencing pain and discomfort, patients with hyperacusis often experience fear and anxiety. As a result, they are often unable to work and they avoid social activities, which can lead to isolation and depression. Often people with hyperacusis want to wear ear protection continuously. But this can actually exacerbate the problem because the auditory system balances loudness based on median sound levels over time.¹ Although hyperacusis is a relatively new diagnosis, researchers have estimated that between 1% and 1.5% of the population has a clinically significant form of the condition.²

In the majority of cases, the etiology of hyperacusis is unknown. However, it has been linked to head injury, sound exposure, acoustic shock, Bell's palsy, Lyme disease, Williams syndrome, Ramsay Hunt syndrome, stapedectomy surgery, perilymphatic fistula, migraine, depression, increases in cerebrospinal fluid pressure, autism spectrum disorder, and Addison's disease.¹ The dearth of strong epidemiological data and the lack of animal research and double-blind human studies about the potential mechanisms responsible for hyperacusis prevent us from proving the validity of any theory as to what causes it.

■ Diagnosis and Treatment

Because there is little understanding of hyperacusis within the medical community, physicians who encounter patients with this disorder have often recommended psychotherapy and antidepressants and/or anti-anxiety medications. These medications may dull the associated emotional response; however, they do not address the underlying problem.

Hyperacusis can be reversed, and a person's sound tolerance can be brought back to within normal limits with appropriate treatment.^{1,3} Treating hyperacusis starts with a clinical diagnosis. An otolaryngologist or otologist typically makes the initial diagnosis, which involves taking a case history, administering self-rating questionnaires to the patient, and having an audiologist conduct a loudness discomfort level test.^{1,3}

The most widely accepted approach to treatment is desensitizing the patient to sound. This involves the patient undergoing sound therapy, in which he or she wears on-ear white noise generators, which are small devices that rest behind the ear. (They do not interfere with a person's hearing.) When combined with behavioral modification exercises to address any misophonia or fear of sound, the treatment can lead to significant or complete restoration of sound tolerance. Although patients do see some immediate improvement with sound therapy, full recovery can take months.² Improvement is measured through re-evaluation with loudness discomfort level testing.

A Case of Misophonia

Lindsey Jones is a healthy 15-year-old girl who becomes angry when she hears people chewing, smacking their lips, or making other sounds with their mouths. Hearing these sounds started affecting her when she was 12 years old. She has since stopped eating dinner with her family and is home schooled, as she cannot tolerate these sounds in the classroom and lunchroom. Lindsey exhibits signs of soft-sound sensitivity syndrome (4S), a form of misophonia.

■ What is Misophonia?

Misophonia is defined as a strong dislike of certain sounds and an abnormally strong reaction to them such as anger or even fear.¹ The specific sounds that cause the reaction are unique to each individual. However, they often include yawns, sniffles, chewing, lip smacking, gum chewing, and throat clearing. Very little is known about the number of people affected by this condition; however, we do know that it is typically seen in prepubescent girls and that they have violent reactions and/or exhibit OCD-like behaviors. The cause of misophonia is unknown. There is speculation that it may be related to the neural processing of sound information.¹

■ Diagnosis and Treatment

Until recently, many physicians and patients were not aware of misophonia. Only because of news reports about people who suffer from this condition have patients recently started coming forward, noting that they thought that they were the only ones who suffered from it. In the past, persons exhibiting these behaviors typically were referred to a psychologist or psychiatrist and had minimal success with such treatments. Although misophonia is still not well-understood, there are strategies for managing it.

Treatment often involves a multidisciplinary team that includes an audiologist and a psychologist. An audiologist will help determine an appropriate type of sound therapy and monitor the patient's progress. Sound therapy often involves having the patient use a device such as an ear-level white-noise generator or even an iPod in order to minimize their awareness of the offending sounds. A psychologist might use cognitive behavioral therapy to help the patient manage the emotions they feel or OCD behaviors they exhibit when they anticipate or hear offending sounds.

Conclusion

It is common for people with hyperacusis and/or misophonia to be told by a physician that they need to learn to live with the problem, as these conditions have no surgical or pharmacological treatments. This can be a tall order, as they can have a devastating effect on a patient's quality of life. We now know that certain therapies can help some patients. Physicians who encounter patients with symptoms of these conditions may wish to refer them to an otolaryngologist or audiologist who has experience with them for diagnosis and treatment. **MM**

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References

1. Jastreboff P, Hazell J. *Tinnitus Retraining Therapy: Implementing the Neurophysiological Model*. Cambridge University Press. 2004.
2. Hazell JWP, Sheldrake JB, Graham RL. Decreased sound tolerance: predisposing factors, triggers and outcomes after TRT. In: Patuzzi R (ed) *Proceedings VIIth International Tinnitus Seminar 2002*;255-61.

3. Blasing L, Goebel G, Flotzinger U, Berthold A, Kroner-Herwig B. Hypersensitivity to sound in tinnitus patients: an analysis of a construct based on questionnaire and audiological data. *Int. J Audiol.* 2010;49(7): 518-26.

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