

PERSPECTIVE

LESS IS MORE

When the Music Stops, Choose Your Options Wisely A Teachable Moment

Austin Lammers, MD

Department of Hematology and Medical Oncology, Oregon Health and Science University, Portland.

Read Pierce, MD

Division of General Internal Medicine, Department of Medicine, University of Colorado, Denver.

Story From the Front Lines

A man in his 70s with hypertension and type 2 diabetes mellitus presented to the clinic complaining of 6 days of sudden-onset, right-sided hearing loss. He reported hearing a phone ring, holding the phone to his right ear, and being unable to appreciate any sound. His left-sided hearing was unaffected. He stated that he had not had any recent upper respiratory infection, trauma, headache, slurred speech, weakness, facial droop, otalgia, imbalance, or tinnitus. On examination he had normal blood pressure, clear external auditory canals, and normal tympanic membranes. Findings from the neurologic examination were normal except for pronounced right-sided hearing loss. The otolaryngology service was consulted, but they were unable to perform an immediate in-person evaluation in the clinic. Instead, they recommended an urgent, noncontrast computed tomographic (CT) scan of the head as well as an audiologic examination. The results of the CT scan were normal. Same-day pure-tone audiometry demonstrated normal hearing in the patient's left ear, and findings were consistent with sensorineural hearing loss (SNHL) in the right ear. Following current treatment guidelines, he was prescribed prednisone, 60 mg daily for 7 days. Within 1 week, his right-sided hearing had returned almost to baseline, and repeated audiologic testing 2 weeks later showed complete resolution.

Exercising Restraint

Acute hearing loss can be frightening and may arise from a number of serious conditions. Thus, it warrants prompt physician evaluation. The incidence of sudden SNHL (SSNHL) is estimated to be 5 to 100 per 100 000 patients per year, and SSNHL results in numerous physician visits, imaging studies, and laboratory tests annually.¹ Fortunately, in up to 65% cases of SSNHL, patients recover spontaneously.² When evaluating patients with hearing loss, physicians must first assess for signs of stroke because basilar ischemia can produce this symptom. Posterior circulation infarctions, specifically involving the anterior inferior cerebral artery, often present with hearing loss and associated symptoms of Horner syndrome, ataxia, nystagmus, and diplopia. Computed tomographic imaging to assess the diagnosis is essential in patients with these findings. Vestibular schwannoma, a diagnosis that is a cause for concern and is also included in the

differential, typically presents with slowly progressive hearing loss accompanied by tinnitus, otalgia, and imbalance.

In the absence of stroke or concern for vestibular schwannoma, it is important to determine whether the hearing loss is conductive or sensorineural. This can be assessed with Weber and Rinne testing, although these maneuvers have limited sensitivity and specificity.³ Confirmatory testing can be obtained with pure-tone audiometry, the gold standard for defining SSNHL. Conductive hearing loss results from abnormalities of the external ear (tympanic membrane, middle ear air space, or ossicles) and can be adequately excluded via audiometry.

In this case, given the normal findings from the patient's physical examination, SSNHL, and lack of other focal neurologic findings, idiopathic SSNHL was the most likely diagnosis. His symptoms followed a typical course. A CT image of the head was obtained prior to his audiometric evaluation, which was unnecessary but, unfortunately, is still quite common in clinical practice. In one retrospective study,⁴ 40% of 400 patients with SSNHL underwent an immediate magnetic resonance imaging (MRI) or CT scan. According to recommendations developed by the American Academy of Otolaryngology as part of the Choosing Wisely Campaign, CT imaging of the head should be avoided in the evaluation of idiopathic SSNHL.⁵ This recommendation stems in part from the low likelihood ($\leq 4\%$) of finding a causative lesion, and the high risk of uncovering incidental intracerebral findings, which is greater than 80%.⁶ If concern persists about an intracranial mass lesion, such as schwannoma, shared decision-making with the patient regarding MRI of the brain is recommended.

Exercising restraint in an era of brief visits coupled with diagnostic uncertainty can be difficult. Viewed through the narrow lens of a single encounter, early CT imaging in cases of hearing loss may seem reasonable. However, in this case and many others, an unnecessary test could have been avoided through better communication of diagnostic assessment and evidence-based guidelines between a primary care physician and specialist. Often the path of least resistance for clinicians working inside the system may not serve the patient's best interests. With a dash of courage—typically free—we can still do well by doing less. When the music stops, remember to choose your options wisely.

Corresponding

Author: Austin Lammers, MD, Department of Hematology and Medical Oncology, Oregon Health and Science University, 3101 SE 10th Ave, Unit 2, Portland, OR 97202 (lammersa@ohsu.edu).

Published Online: December 8, 2014.
doi:10.1001/jamainternmed.2014.6566.

Conflict of Interest Disclosures: None reported.

Additional Information: Dr Lammers prepared the original draft of this manuscript while a resident in the Department of Internal Medicine, University of Colorado, Denver.

1. Stachler RJ, Chandrasekhar SS, Archer SM, et al; American Academy of Otolaryngology-Head and Neck Surgery. Clinical practice guideline: sudden

hearing loss. *Otolaryngol Head Neck Surg.* 2012;146(3)(suppl):S1-S35.

2. Mattox DE, Simmons FB. Natural history of sudden sensorineural hearing loss. *Ann Otol Rhinol Laryngol.* 1977;86(4, pt 1):463-480.

3. Bagai A, Thavendiranathan P, Detsky AS. Does this patient have hearing impairment? *JAMA.* 2006;295(4):416-428.

4. Nosrati-Zarenoe R, Hansson M, Hultcrantz E. Assessment of diagnostic approaches to idiopathic

sudden sensorineural hearing loss and their influence on treatment and outcome. *Acta Otolaryngol.* 2010;130(3):384-391.

5. Robertson PJ, Brereton JM, Roberson DW, Shah RK, Nielsen DR. Choosing wisely: our list. *Otolaryngol Head Neck Surg.* 2013;148(4):534-536.

6. Cadoni G, Cianfoni A, Agostino S, et al. Magnetic resonance imaging findings in sudden sensorineural hearing loss. *J Otolaryngol.* 2006;35(5):310-316.