Take 3 – Practical Practice Pointers© August 19, 2019 Edition

Sudden Hearing Loss, B2 for Migraine, Calorie Reduction and CV Risk

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From the Guidelines and the AAO-HNSF

1) Sudden Hearing Loss (SHL)

Sudden hearing loss (SHL) is a frightening symptom that often prompts an urgent or emergent visit. It is frequently but not universally accompanied by tinnitus and/or vertigo. Sudden sensorineural hearing loss affects 5 to 27 per 100,000 people annually, with about 66,000 new cases per year.

The American Academy of Otolaryngology–Head and Neck Surgery Foundation (AAO-HNSF) recently updated their 2012 guideline regarding the diagnosis and management of sudden sensorineural hearing loss (SSNHL). This guideline provides evidence-based recommendations for the diagnosis, management, and follow-up of patients who present with SHL. It focuses on sudden sensorineural hearing loss (SSNHL) in adults and primarily on those with idiopathic SSNHL. Prompt recognition and management of SSNHL may improve hearing recovery and patient quality of life. Some guiding principles include:

- SHL is defined as a rapid-onset subjective sensation of hearing impairment in one or both ears. The hearing loss in SHL may be a conductive hearing loss (CHL), sensorineural hearing loss (SNHL), or mixed hearing loss, defined as both CHL and SNHL occurring in the same ear. CHL and the conductive component of mixed hearing loss may be due to an abnormality in the ear canal, tympanic membrane ("ear drum"), or middle ear. Physical examination will help determine if there is obstructing cerumen or a foreign body in the ear canal, if there is a perforation of the tympanic membrane, or if there is fluid in the middle ear.
- Tuning fork testing will enable the initial treating clinician to distinguish CHL from SNHL so that the SSNHL evaluation and management pathway can be triggered appropriately.
- SSNHL is a subset of SHL that is (a) sensorineural in nature, (b) occurs within a 72-hour window, and (c) meets certain audiometric criteria.
- The distinction between SSNHL and sudden conductive or mixed hearing loss is one that should be made by the initial treating health care provider. Moreover, nonidiopathic causes of SSNHL must be identified and addressed during the course of management; the most pressing of these are vestibular schwannoma (acoustic neuroma), stroke, malignancy, noise, and ototoxic medications.

Guideline Key Action Statements (KAS) include:

- Distinguish SNHL from CHL when a patient first presents with SHL. *Strong recommendation*
- Assess patients with presumptive SSNHL through history and PE for bilateral SHL, recurrent episodes of SHL, and/or focal neurologic findings. *Recommendation*
- Do not order routine CT of the head in the initial evaluation of a patient with presumptive SSNHL. *Strong recommendation against*
- In patients with SHL, obtain, or refer to a clinician who can obtain, audiometry as soon as possible (within 14 days of symptom onset) to confirm the diagnosis of SSNHL. *Recommendation*

- Do not obtain routine laboratory tests in patients with SSNHL. *Strong recommendation against*
- Evaluate patients with SSNHL for retrocochlear pathology by obtaining an MRI or auditory brainstem response (ABR). *Recommendation*
- Educate patients with SSNHL about the natural history of the condition, the benefits and risks of medical interventions, and the limitations of existing evidence regarding efficacy. *Strong recommendation*
- Offer corticosteroids as initial therapy to patients with SSNHL within 2 weeks of symptom onset. *Option.*
- Offer, or refer to a clinician who can offer, IT (intratympanic) steroid therapy when patients have incomplete recovery from SSNHL 2 to 6 weeks after onset of symptoms. *Recommendation*
- Do not routinely prescribe antivirals, thrombolytics, vasodilators, or vasoactive substances to patients with SSNHL. *Strong recommendation against*
- Obtain follow-up audiometric evaluation for patients with SSNHL at the conclusion of treatment and within 6 months of completion of treatment. *Recommendation*
- Counsel patients with SSNHL who have residual hearing loss and/or tinnitus about the possible benefits of audiologic rehabilitation and other supportive measures. *Strong recommendation*

My Comment:
This guideline hits close to home, as I was diagnosed with idiopathic SSNHL in 2018, and though I delayed seeking treatment ("testosterone poisoning), have fortunately experienced complete recover of my hearing.

Remember that patients often first present with dizziness, which occurs in 30% to 60% of cases. There is urgency of initial evaluation, as treatments appear to have the most benefit early in the disease process. It is also important to remember that tinnitus is a frequent comorbidity that may persist and, with time, may become the patient's primary concern. Personal experience indicates that the psychological and communicative challenges experienced during an acute episode of SHL are quite real, as is the possibility of unrecovered hearing loss and persistent tinnitus.

References:

- Chandrasekhar S, et al. Clinical Practice Guideline: Sudden Hearing Loss. Clinical Practice Guideline: Sudden Hearing Loss (Update). Otolar-HNS. Vol 161, Issue 1 suppl. First Published August 1, 2019. Guideline
- Testing For Hearing Loss Video: Rinne and Weber tests: Video

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Brief Report From the Literature

2) Use of Riboflavin (Vitamin B-2) for Migraine Prophylaxis

The association between riboflavin (Vitamin B2) supplementation and migraine prevention has been known for decades, but has not been socialized well in practice. Indeed, a 1998 randomized controlled trial using 400 mg of riboflavin daily compared with placebo over a 3 month period showed a significant reduction in attack frequency and headache days with a calculated number needed to treat (NNT) of 2.3.

Despite this, the direct correlation has never been made by prospectively measuring riboflavin levels and treating those with chronic migraine syndrome who are found to have levels considered to be in the deficient range.

A small study exploring this connection was presented recently at the 2019 American Headache Society (AHS) annual meeting. The researchers assessed 42 patients (84% women; mean age, 35.5 years) with chronic migraine whose serum riboflavin levels were in the deficient range. The investigators provided supplements to increase serum riboflavin to a high level. They monitored complete vitamin and micronutrient levels through serial laboratory measurements over 2 years.

The researchers found that the number of migraine days per month was reduced from an average of 14.4 at baseline to 3.4 after riboflavin treatment. In addition, 81% of the participants were migraine free at 2 years. They concluded that, though thought to be rare, patients with vitamin B2 deficiency might particularly benefit from riboflavin supplementation. This was an inexpensive, easy to implement, and well tolerated intervention.

My Comment:
While I've known about this intervention for many years, I often overlook it with my patients with chronic migraine. It certainly seems an intervention that should be considered early in the process of treatment. This is the first time I've encountered the term "nutritional" neurology, an area which is already of interest in other medical disciplines.

In addition to riboflavin, there have been promising small migraine prevention studies using magnesium, coenzyme Q10, and the herb butterbur. Magnesium oxide at a dose of 500 mg is the most commonly used magnesium for migraine prevention, but it isn't well-absorbed and causes diarrhea in many people. A better option is to take 400-600 mg of magnesium citrate, glycinate, taurate, or threonate each day. The dose used for coenzyme Q10 is 150 mg and for butterbur, 75 mg. Given the expense and/or side effects of many prescription options, these also seem like some alternatives worthy of consideration and discussion with our patients with chronic migraine.

References:

- Schoenen J, et al. Effectiveness of high-dose riboflavin in migraine prophylaxis. A randomized controlled trial. Neurology. 1998 Feb;50(2):466-70. **Abstract**
- Achari, Escamilla-Ocanas, and Sheikh H. American Headache Society (AHS) Annual Meeting 2019: Abstract P42. Presented July 12, 2019.

Brief Report From the Literature

3) Calorie Reduction and Reducing CV Risk in Non-Obese

The CALERIE (The Comprehensive Assessment of Long-Term Effects of Reducing Intake of Energy) was a randomized controlled trial investigating the short-term and long-term effects of calorie reduction with adequate nutrition on a number of cardiometabolic risk factors in in healthy, lean, or slightly overweight adults.

The study randomly assigned (2:1) 218 young and middle-aged (21–50 years), healthy non-obese (BMI 22–28) men (30%) and women (70%) to a 25% calorie restriction diet

or an ad libitum (normal) control diet. Cardiometabolic risk factor responses to a prescribed 25% calorie restriction diet for 2 years were evaluated (systolic, diastolic, and mean blood pressure; plasma lipids; high-sensitivity C-reactive protein; metabolic syndrome score; and glucose homoeostasis measures of fasting insulin, glucose, insulin resistance, and 2-h glucose, area-under-the curve for glucose, and insulin from an oral glucose tolerance test).

Individuals in the intervention group were fed three meals per day, every day, at their clinical center for 1 month, during which they were instructed on the basis of calorie restriction. In addition, an in-house meal was provided alongside intensive group and individual behavioral counseling once a week for the first 24 weeks of the study. Those assigned to the control group continued their regular diet and received no specific dietary intervention or counseling. They were followed every 3 months.

Subjects in the calorie restriction group achieved a mean reduction in calorie intake of 12% (2467 kcal to 2170 kcal). Energy intake in the calorie restriction group was reduced by a mean of 19.5% over the first 6 months, then crept back up to a mean reduction of 9.1% after 6 months, to average 11.9% over the 2 years of the study. There was no change in average daily energy intake in the control group. These differences resulted in a sustained mean weight reduction of 16.5 lb in the intervention group, of which 71% was fat mass loss, vs. an increase of 0.2 lb in the control group.

The authors found calorie restriction caused a persistent and significant reduction from baseline to 2 years of all measured cardiometabolic risk factors. They concluded that these findings suggest the potential for a substantial improvement for CV health of practicing moderate calorie restriction in young and middle-aged healthy individuals, and they offer promise for pronounced long-term population health benefits.

My Comment:
Wow! In this study, reducing daily food intake by 300 calories/day (less than a couple of cookies) in a relatively healthy population over 2 years led not only to improvements in body composition but a range of cardiometabolic risk factors. In our often “pharma-centric” medical practices, it’s exciting to see such a simple intervention have such profound results.

Of course, this was a select population in that they were already relatively healthy and therefore likely to more easily make these lifestyle adjustments than an unhealthier population. Still, this change is a goal that seems “achievable” for many, and certainly worth trying with some of our more challenging patients, particularly given some of the “trendier” (and often, much crazier) diets that many are attempting!

Reference:
Kraus WE, et al. 2 years of calorie restriction and cardiometabolic risk (CALERIE): exploratory outcomes of a multicentre, phase 2, randomised controlled trial. Lancet Diab and Endo. Published: July 11, 2019. Abstract

Feel free to forward Take 3 to your colleagues. Glad to add them to the distribution list.

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