

Practice Patterns in Asymmetric Sensorineural Hearing Loss: Survey Data

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Abstract

Objective: The management of patients with asymmetric sensorineural hearing loss represents a diagnostic challenge. Although various screening protocols for obtaining MRI have been proposed, the threshold of hearing loss which guides actual clinical decision-making remains understudied. This project aims to compare protocols followed by practitioners to guide their imaging practices.

Methods: A list of 530 otolaryngologists (276 otology/neurotology specialists, 254 general otolaryngologists) was compiled. A survey consisting of three parts: demographics, general practice patterns, and simulated patient cases was distributed electronically.

Results:

468 surveys were successfully distributed, resulting in 88 (18.8%) responses. The majority of respondents (63.8%) self-reported their definition of ASNHL as “>30dB hearing asymmetry at one frequency OR >20 dB hearing asymmetry at two continuous frequencies OR >10dB hearing asymmetry at three contiguous frequencies”. Overall, general otolaryngologists were more likely to observe asymmetric findings with serial audiograms rather than obtain imaging.

Conclusion:

There is significant variability between providers with regards to managing patients with ASNHL and evidence-based guidelines would be useful in guiding imaging of patients.

Introduction

Although hearing loss may occur due the effects of aging, noise exposure, or infections, the onset of asymmetric hearing loss raises concerns for the possibility of a neoplastic etiology. Patients with vestibular schwannoma (VS) most commonly present with asymmetric sensorineural hearing loss (ASNHL) as their chief complaint.

Magnetic resonance imaging (MRI) with and without contrast has been the gold-standard for screening and detection of VS, with a sensitivity and specificity approaching 100%. Yet, these studies remain expensive, can be difficult to tolerate for many patients, are time-consuming, and have a low diagnostic yield for VS of only 1-5%.

While it has been established that patients with VS can present with ASNHL, there remains no consensus regarding the specific definition of ASNHL. Various screening protocols have been proposed to help guide which patients would benefit from further diagnostic imaging. Yet, the threshold of hearing loss which guides clinical decision-making remains understudied. This project aims to characterize how providers are managing patients who present to their clinics with ASNHL by surveying practitioners regarding their imaging practices. Moreover, we sought to compare the imaging practices of general otolaryngologists and otologists/neurotologists.

Methods and Materials

To compile a list of otology/neurotology specialists and general otolaryngologists, a primary list of all North American otolaryngology residency programs was created. From each institution’s website, physicians were selected based on listed education or scope of practice. Contact information was found for 530 otolaryngologists (276 otology/neurotology specialists, and 254 general otolaryngologists).

A survey was created using Google Forms comprising three sections: demographics, general practice patterns, and simulated patient cases. Surveys were distributed via email. No identifying information was collected. Informed consent was obtained from participants. Survey responses were analyzed for trends and distribution of consensus on our topics of interest.

Results

Responses were obtained from 64 otologists/neurotologists and 19 general otolaryngologists. Most general otolaryngologists and otologists / neurotologists (76.19% and 58.82% respectively) reported their definition of ASNHL to be “>30dB hearing asymmetry at one frequency OR >20 dB hearing asymmetry at two continuous frequencies OR >10dB hearing asymmetry at three contiguous frequencies” (Figure 1).

When asked how they would manage a patient with acute mild hearing loss, 43.5% of general otolaryngologists stated they would observe with serial audiogram, compared with only 15.9% of otologists/neurotologists (p=.0174). For patients with acute moderate to severe ASNHL. 20.8% of general otolaryngologists stated they would observe with serial audiogram compared to 4.8% of otologists/neurotologists (p=.0511). Otologists/ neurotologists were more likely to obtain imaging studies (Table 1).

When asked about managing patients with acute SNHL who regain their hearing following treatment, 90.2% of otologists elected to obtain imaging compared to only 45.8% of general otolaryngologists (p<0.0001).

Furthermore, across all questions, otologists/neurotologists were more likely than generalist otolaryngologists to order a T2W MRI, although these differences were not significant.

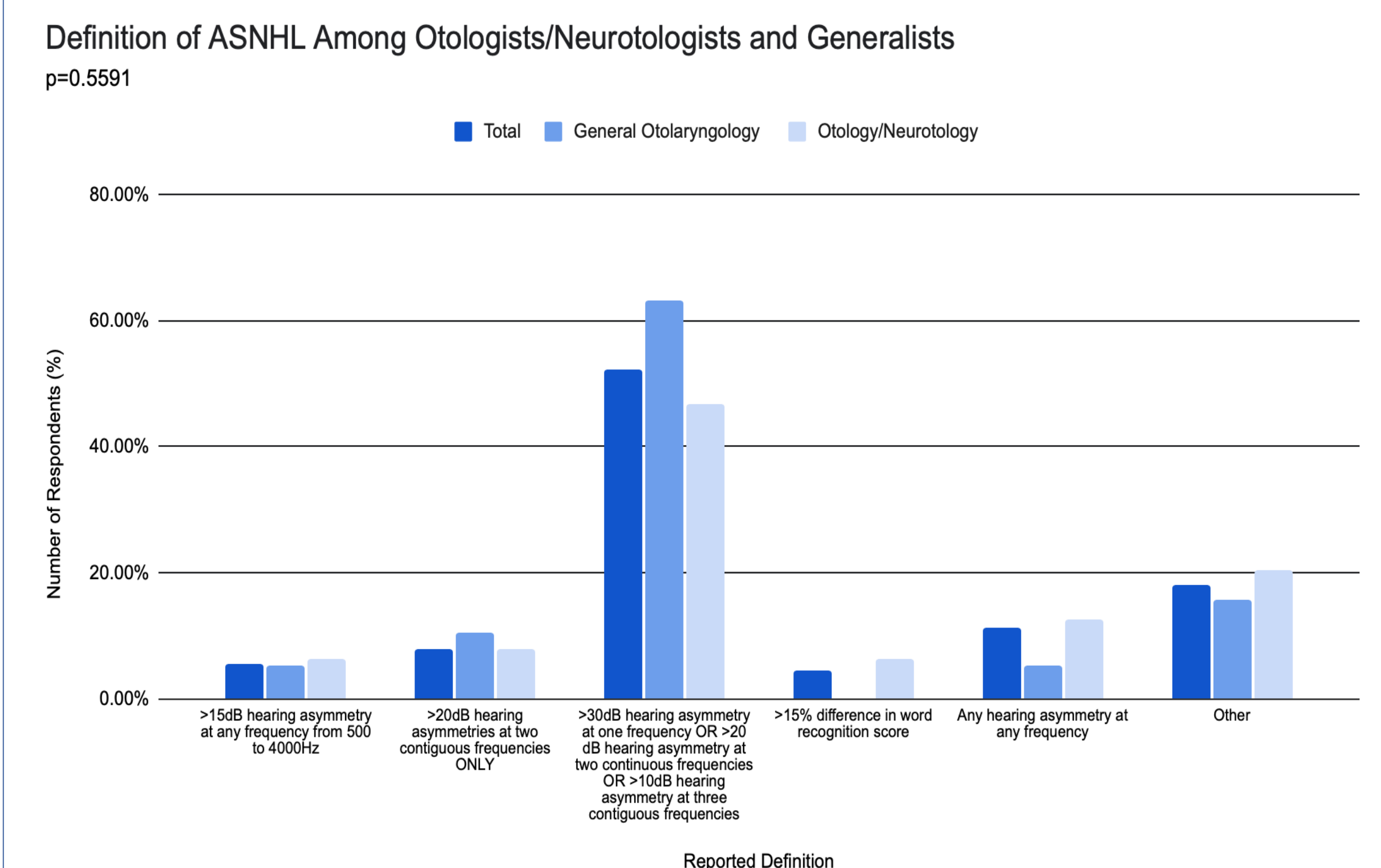
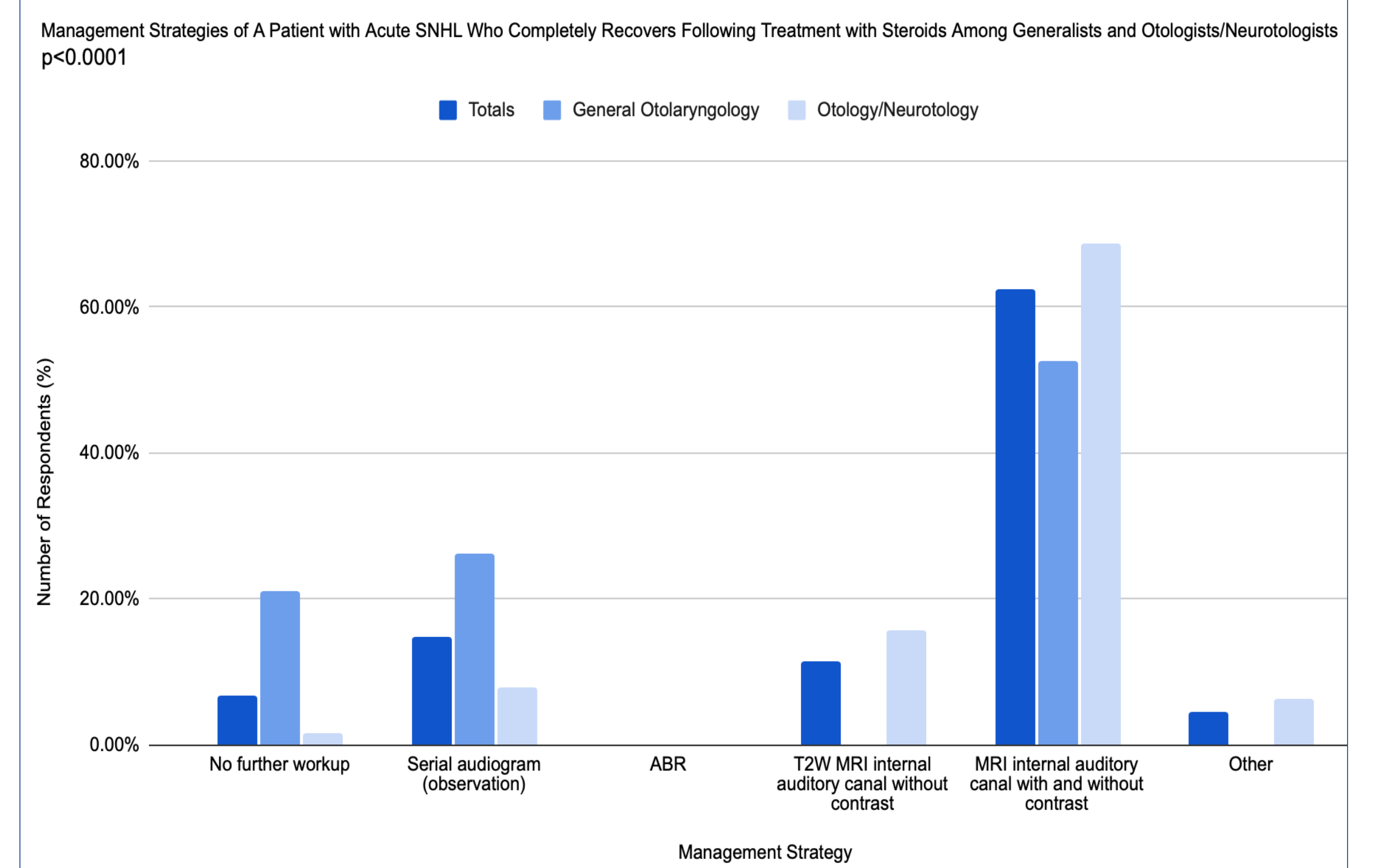


Figure 1: Self reported definitions of ASNHL among otologists/neurotologists and general otolaryngologists (p=0.5591).

Patient Presentation	General Otolaryngologists	Otolologists/Neurotologists
Acute mild ASNHL		
Serial audiogram (observation)	10 (43.48)	10 (15.87)
ABR	0 (0.0)	2 (3.17)
T2W MRI internal auditory canal without contrast	0 (0.0)	9 (14.29)
MRI internal auditory canal with and without contrast	13 (56.52)	42 (66.67)
		p-value: 0.0174
Acute moderate to severe ASNHL		
Serial audiogram (observation)	5 (20.83)	3 (4.76)
ABR	0 (0.0)	0 (0.0)
T2W MRI internal auditory canal without contrast	1 (4.17)	7 (11.11)
MRI internal auditory canal with and without contrast	18 (75.00)	53 (84.13)
		p-value: 0.0511

Values are presented as number (%) unless otherwise indicated. Acronyms: ABR = auditory brainstem response.



Discussion

To our knowledge, our study is the first to survey providers regarding their management of ASNHL, and to compare the practices between general otolaryngologists and otologists/neurotologists. In highly specialized settings, it is possible that patients with hearing loss get seen nearly-exclusively by specialists. However, in most practice environments, patients with hearing loss are likely evaluated by a general otolaryngologist.

Our results highlight a lack of consensus regarding not only how to define ASNHL, but also how to further manage workup of patients with ASNHL. Among both otologists/neurotologists and general otolaryngologists, there was no statistically significant uniform cutoff as a designation of ASNHL.

A prospective study should be conducted to help create guidelines defining the parameters of ASNHL. Official recommendations on what criteria should prompt screening would contribute positively to patient care.

Conclusion

There is significant variability between providers with regards to managing patients with ASNHL. Evidence-based guidelines would be useful in guiding imaging of patients and creating standardized practices.

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