INTERVIEW WITH DR. RALLAPALLI

Varsha Rallapalli, PhD, AuD, CCC-A (pictured below) is the co-author of a recent publication to Ear and Hearing. The interview over the next two pages discusses this article and how higher-level processing is being used in hearing aid research.

Davidson: Congratulations on your recent publication Dr. Rallapalli! Please tell us a little about yourself.

Rallapalli: I am a 4th year postdoctoral scholar in the Hearing Aid Lab at Northwestern University. I received my AuD and PhD degrees from Purdue University. My primary research interest is in improving evidence-based approaches for individualized hearing aid fitting while considering realistic listening environments.

Davidson: In this article, working memory and speech recognition in noise are both complex abilities. Where does your interest in these higher-level processing abilities stem from?

Rallapalli: During my AuD training, I often came across individuals who had similar hearing profiles but very different experiences with hearing aids.

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Rallapalli: Ever since, I have always been drawn towards wanting to understand the source of these differences so that I can provide a more tailored treatment to individuals with hearing loss. As I delved further, I found that cognitive abilities (and working memory) have received a lot of attention in this context in the recent years. However, we still do not fully understand the extent to which these higher-level processing abilities should be considered in clinical-decision making. Therefore, I became interested in studying the role of working memory in speech recognition with hearing aids in clinically relevant conditions.

Davidson: It is clear from this article that hearing aids are not a one size fits all solution. How do you think this research will impact the future of audiology and hearing research?

Rallapalli: This research highlights the importance of conducting hearing aid research in realistic conditions. The research also demonstrates how hearing aid features (compression and directionality) may interact with each other and how this may impact individuals with different cognitive abilities. When this research is combined with other clinically relevant work in this field in the future, I hope that we can deliver more patient-centered and individualized treatment approaches.

Davidson: Do you think the results from this article would be true for those with better auditory processing abilities as well?

Rallapalli: I think this is an important question that would be best answered with a systematic study. But for now, I will try to take an educated guess. In this study, we speculated that individuals with better working memory were able to utilize the preserved speech cues better than individuals with poor working memory when distortion was low. To the extent that individuals with better processing abilities are also able to take advantage of the improved speech cues in low distortion conditions, we might expect the same results as those with better working memory seen in this study. In fact, it would be very informative to see future work that considers auditory processing abilities as an individual factor in addition to working memory to determine the degree to which each factor might contribute to differences in hearing aid outcomes.

Davidson: Thank you for these insights! What is next for you Dr. Rallapalli?

Rallapalli: I am excited to continue my work in the area of hearing aid processing, working memory, and realistic conditions. I recently received a K-award from NIDCD to pursue this research. So, in the immediate future, I plan on building on the current study to include a comprehensive set of hearing aid and spatial conditions.

Davidson: This publication, recently accepted into Ear and Hearing, will soon be available. Keep an eye out, it is sure to be a game changer in the world of audiology research!

Topic: Central auditory function and Multiple Sclerosis (MS)

Many audiologists are unaware of the possible effects of MS on the auditory system. This is despite many reports that have been filed over the years showing compromise primarily of the central auditory nervous system for this disorder. Auditory dysfunction depends on whether the auditory system is affected by the disease process. Multiple sclerosis is not selective; it can affect any of the body’s systems that are dependent on myelinated nerve conduction.

There are about 1 million cases of MS in the U.S. with 200 new cases occurring every week. The prevalence of auditory symptoms in the MS population ranges from approximately 6 to 40%. Nearly a dozen studies revealed at least 50% of MS patients showed abnormal findings on behavioral and/or electrophysiological central auditory tests. Conversely, normal audiograms are common for those with MS.

In the audiological evaluation of patients with MS, one must consider the anatomy of the main myelinated auditory pathways. These pathways include lateral lemniscus tracts in the pons and the corpus callosum in the cerebrum. Therefore, the ABR would be the test of choice for assessment of the brainstem with backup tests being masking level differences (MLDs) and the acoustic reflex. For evaluating callosal (interhemispheric) function, dichotic tests are clearly the best choice. These two procedures should provide good sensitivity to auditory compromise, if present, in those with MS. It should be mentioned that the middle latency response (MLR) is also a test that shows good sensitivity to auditory dysfunction associated with MS.

It is important that audiologists do not overlook this patient population as they can often help in the diagnosis and management of these patients who may have compromise of their auditory system.

ANATOMICAL DESCRIPTIONS

A recent publication, “Morphological Variance and a Related Taxonomy of the Planum Temporale”, seeks to describe and stratify planum temporale gross morphology. The proposed classifications are an initial step in creating a comprehensive taxonomy of planum temporale. We strongly believe that will aid neuroanatomists, clinicians, and students in terms of differentiation and identification of planum temporale from surrounding cortical auditory structures on the superior temporal plane.


HHTM-PATHWAYS

Recent articles on neuroaudiology can be found on the Hearing Health and Technology Matters-Pathways website: hearinghealthmatters.org/pathways/

- Shivashankar, N. (October 2020). Dr. Shivashankar’s Case Commentaries (Part 1).

Interesting Reads on Neuroaudiology and CAPD


AUDIOLOGY TRIVIA ANSWERS

1) Bekesy’s book was published in (B) 1960.
2) The commissure of Probst is located in the (B) pons.