



Cochlear Implant Center

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Outcomes of group Aural Rehabilitation for older adult CI recipients

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Abstract

Introduction: While self-guided aural rehabilitation activities are prominent within the arena of rehabilitation, patient compliance with computerized programs is as low as 30%. Prior studies have indicated that those actively participating in a group rehabilitation option were more likely to have a higher self-report of quality of life and be considered good performers. This pilot study serves to collect clinically needed intelligence in regards to the impact of group aural rehabilitation on patient performance, patient perception of hearing handicap, and quality of life. Further development of this delivery model provides the opportunity to improve upon the standard of care for implant recipients. Structured assessment of self-reported measures, in addition to evaluation of speech recognition abilities, is vital, as The Centers for Medicare and Medicaid Quality Strategy report include measures of quality of life measures as a primary outcome measure. (McRacken et al., 2017). The central question that this study serves to answer, is how does group aural rehabilitation affect outcomes of older adult cochlear implant recipients across various domains?

Methods: Older cochlear implant recipients (age 70+) were recruited on a volunteer basis to engage in an 8 week virtual aural rehabilitation course led by a speech language pathologist and audiologist. The course provided information on the best use of assistive listening devices and communication strategies in order to improve communication. The group also provided a forum for discussion of feelings related to hearing impairment as well as the stigma surrounding hearing loss and cochlear implants. The group informed participants of available community resources for the deaf and hard of hearing population. Participants were provided with several published resources. Between sessions, participants were asked to employ strategies learned in the course within their daily lives and report back the following week. Prior to enrollment, subjective and objective measures of implant performance were administered, and these measures were re-administered after the conclusion of the rehabilitation program to meaningfully compare performance and patient-perceptions as a result of group engagement.

Results: Data on patient perceptions and speech recognition scores pre and post group rehabilitation will be shared and trends in data examined. Results will be utilized to describe and quantify the impact of an aural rehabilitation group on objective and subjective outcome measures. Needed clinical supports as well as clinical struggles associated with the provision and facilitation of group rehabilitation will also be shared.

Conclusion: By examining the direct impacts of patient engagement in group rehabilitation, we can ascertain potential benefits in a quantifiable way. Data collected can work to build the evidence base needed to mandate increased rehabilitative services for older adults in a format that can be integrated into billable clinical time. Information obtained may also illustrate additional ways to capture patient-perceived benefits of implantation.

Objectives & Goals

Evaluate impact of engagement in an aural rehabilitation group on patient speech recognition performance and patient perception of hearing impairment and quality of life.

1. Introduce recipients to other cochlear implant users to discuss their knowledge, experiences and thought about cochlear implants
2. Identify situations in which use of assistive listening devices can improve communication and ease listening effort.
3. Explain how to implement communication strategies with family, friends and colleagues.
4. Discuss feelings and stigma surrounding hearing loss and cochlear implants.
5. Identify available community resources for the deaf and hard of hearing population.

Methods and Materials

- Adult cochlear implant recipients, > 70 years of age, implanted at WMC were recruited on a volunteer basis to engage in an 8 week aural rehabilitation course held via Zoom led by a speech language pathologist and audiologist. Instruction on how to use Zoom was offered prior to the start of the course.
- Course materials were mailed to the home of each participant. Materials included **Five Keys to Communication Success by Dusty Ann Jensen**, resources from The Ida Institute, recent academic publications, infographics, and tip-sheets.
- Each session included a presentation of information by the clinician(s), a period of discussion amongst group participants, and an activity.
- Between sessions, participants were asked to employ strategies learned in the course within their daily lives and report back the following week.
- GBI, HHIE, and speech in noise scores were obtained via chart review prior to enrollment and all three assessments were re-administered after course completion to assess any measurable impact as a result of course completion.
- Participants were asked to complete a short survey assessing their subjective evaluation of the program.

Subjects

	Gender	Age at Participation	Duration of Implant Use	Technology
Participant 1	Male	90 years	9 months	Bimodal
Participant 2	Female	78 years	1 year	Bimodal
Participant 3	Male	70 years	3.5 years	Bimodal
Participant 4	Female	79 years	2.5 years	Bimodal
Participant 5	Female	74 years	9 years	Bilateral implants

Implant History

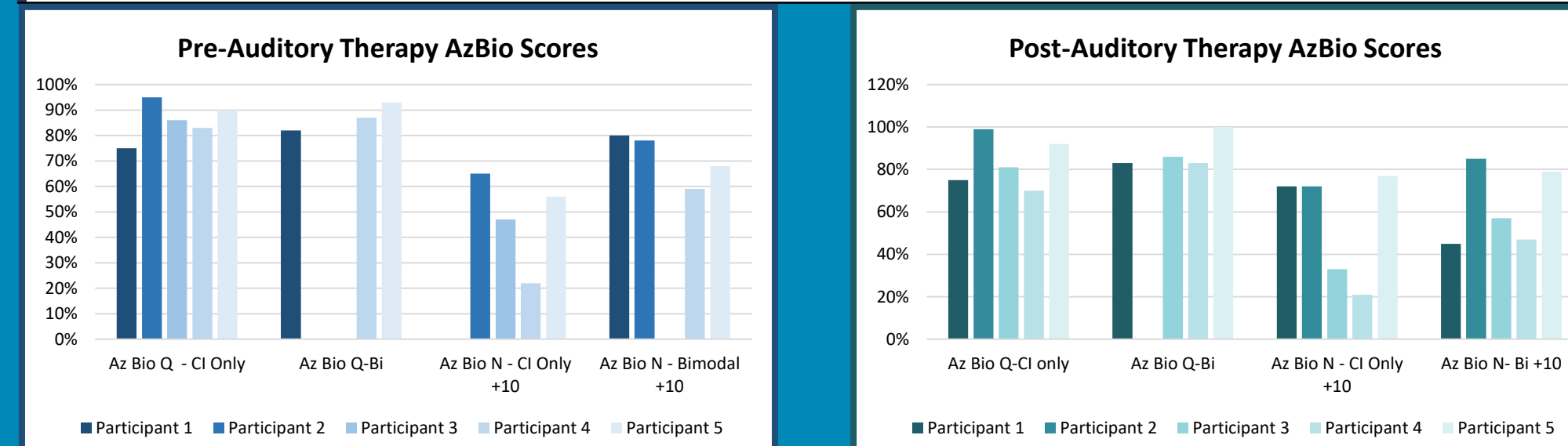
- Full electrode insertion
- Consistent device use: data logging indicated that devices were used during most/all waking hours
- Stable electrode impedance, NRT/NRI and mapping parameters
- All participants were adept at managing their devices
- All participants had previously received individual aural rehabilitation in person or via Zoom and/or had engaged in at home listening exercises

Course Content

- Session 1: Intro, ground rules, needs assessment
- Session 2: Information about hearing & CIs, participant discussion about improvements and disappointments with CI
- Session 3: Group discussion: personal variables based on environment, speaker, listener, technology. Suggestions for improving communication provided.
- Session 4: Discuss participants difficult listening situations and have group brainstorm ideas for improvement.
- Session 5: CLEAR speech, tips for speechreading, speechreading exercise
- Session 6: Assistive technology, music appreciation
- Session 7: Effective listening in healthcare settings, introduction to HLAA
- Session 8: Group discussion about stigma and feelings about hearing loss

Results

AzBio Scores



Quality of Life Measures

	HHEI		GBI							
	Pre-Therapy	Post-Therapy	Total Score		General Score		Social Support Score		Physical Health Score	
Participant 1	62	76	42	44	58	50	33	50	-17	17
Participant 2	28	36		6		21		17		-68
Participant 3		36	56	58	75	75	50	50	-17	0
Participant 4	52	48	33	42	42	58	33	17	0	0
Participant 5		42	6		4		0		17	

Patient Feedback

- Participant attendance and engagement were consistent throughout the course
- Overall patient satisfaction rated as "5/5"
- Participants liked interacting and learning directly from others with implants
- Discussions of feelings associated hearing loss and CI were beneficial to the participants
- Most important topics were assistive listening devices and communication strategies
- Implementation of remote microphone technology was the biggest point of interest
- Participants appreciated learning about home practice resources
- Participants requested additional meetings

Discussion

This project was undertaken to investigate the feasibility and effects of providing group auditory therapy via Zoom to a older cochlear implant recipients. We were curious about the impact that it would have on our clinic schedules, the interest of our recipients, the recipients' ability to use Zoom and to participate in discussion, as well as the impact that the meeting would have on the recipients' communication skills and sense of well being.

Clinical Impact: The clinicians were able to provide the service in the time allotted on their schedules with little to no impact on the flow of the day. Typically, provision of group therapy would be an unbillable procedure; for this project costs were offset by funding from Cochlear Americas.

Interest of cochlear implant recipients: We were surprised that more cochlear implant recipients were not interested in the joining the group, as it promised to address many of the concerns that they express during our mapping sessions. Additionally, many recipients agreed to participate but then did not attend any of the sessions.

Ability to use technology: All of the participants were able to use Zoom with minimal difficulty. Technological difficulties did not interfere with the sessions. All recipients were able to hear and understand using their listening technology and closed captioning. Several benefitted from a practice session with the SLP.

Effects on communication skills: Participation in the group did not have an effect on individual speech perception scores. Surprisingly, that GBI and HHIE scores did not improve. Individual feedback from the participants was very positive; they indicated that they learned a lot from the sessions, enjoyed interacting with other CI recipients, felt less stressed after learning that other recipients had similar difficulties, and felt more confident in their communication skills and ability to communicate in more difficult listening situations.

Effects on participants well-being: All participants stated how important it was to meet other cochlear implant recipients. Overwhelmingly, they highlighted how much they learned from each other.

Future Directions

Provision of group auditory therapy to older adult cochlear implant recipients was executed with minimal to no difficulty. The recipients provided positive feedback about the sessions and indicated that they learned a great deal about their hearing loss and effective communication. Participants indicated that they incorporated the information into their daily lives. Specifically, they reported using their assistive technology more and using proactive solutions in difficult listening situations. They reported feeling more positive about their hearing loss knowing that others experience similar difficulties. We did not find a QoL measure which accurately measured the impact of the course. Consequently, we created our own survey which captured several positive aspects of the course as well as topics that were most interesting.

The clinicians enjoyed the sessions as they provided an opportunity to better understand the communication difficulties that our cochlear implant recipients experience and to better understand the emotional impact of the hearing loss. These are experiences that are much more difficult to share in a busy clinical session. As we move forward, we will investigate other measurement tools, integrate even more practical information about using technology, and will include frequent communication partners in some of the sessions.

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