

International Journal of Research in Special Education

E-ISSN: 2710-3870
P-ISSN: 2710-3862
IJRSE 2022; 2(2): 41-44
© 2022 IJSA
www.rehabilitationjournals.com
Received: 02-05-2022
Accepted: 06-07-2022

Dr. Santosh Yadav
Faculty of Special Education,
Shri Shah K.L. Institute for
the Deaf, Maharaja
Krishnakumarsinhji
Bhavnagar University,
Bhavnagar, Gujarat, India

Manju Yadav
Auditory Verbal Therapist,
Shri Shah K.L. Institute for
the Deaf, Maharaja
Krishnakumarsinhji
Bhavnagar University,
Bhavnagar, Gujarat, India

Corresponding Author:
Dr. Santosh Yadav
Faculty of Special Education,
Shri Shah K.L. Institute for
the Deaf, Maharaja
Krishnakumarsinhji
Bhavnagar University,
Bhavnagar, Gujarat, India

Effectiveness of auditory verbal therapy in the education of children with cochlear implant

Dr. Santosh Yadav and Manju Yadav

DOI: <https://doi.org/10.22271/27103862.2022.v2.i2a.36>

Abstract

Introduction: Listening and speaking are very essential component for language and holistic development of a child. It provides a base to strengthen the ability to read, write, and perform basic operations with numbers. It is a necessary foundation and an indispensable prerequisite for all future schooling and lifelong learning (NEP 2020). Auditory-Verbal Therapy is a highly specialist early intervention programme which facilitates optimal acquisition of spoken language through listening since infancy period in young children who are deaf or hard of hearing.

Material and Method: The study describes two cochlear implanted children, first one is aged 4 years 3 months boy child using advanced bionics implant in both the ears and second child 7 years of girl child using the Kanso 2 Sound Processor with bilateral severe to profound hearing loss and speech-language problem.

Results: The therapist kept giving guidance to the parents, and giving therapy to the child at home as well as clinic. After the post therapy sessions both the children showed the excessive improvement in listening and linguistic skills.

Conclusion: The study revealed that auditory verbal therapy impacted the children's auditory, behavioural, and linguistic functions. Therefore, AVT is beneficial to children after the implant.

Keywords: Deaf & hard of hearing, cochlear implant, kanso 2 sound processor, advanced bionics implant, auditory verbal therapy

Introduction

Hearing impairment is called the hidden disability but it impacts on holistic development of a child. Since the wide-ranging impacts of deafness on young children and their parents, the earlier the hearing loss can be diagnosed the better. Up to 5.3% of the world's population presents hearing loss; 9 % are children. Up to five out of every 1000 babies may be born with hearing loss or acquire it soon after birth (WHO, 2021) ^[14]. Early identification and early intervention during the critical early learning years, has been confirmed to be crucial to the child's overall development.

With the advancement of hearing technology like digital hearing aids, brainstem implants, middle ear implants, cochlear implants for children with severe to profound hearing loss have access the most of spoken language. The advanced technologies translate to higher price points for hearing aids and greater benefits. Cochlear implant technology can provide great potential listening opportunities to children with profound hearing loss (Chowdhury, 2010) ^[5]. Cochlear implant is a high-cost surgical implanted device coupled to external components which provide fruitful hearing and enhance the communication of the person with severe to profound hearing losses. According to Assistance to Disabled Person for Purchase/Fitting of Aids and Appliances (ADIP) scheme total 7744 cases registered for cochlear implant; 3896 cases has done the CI surgery in the 219 empanelled hospitals (ADIP, 2022) ^[1].

Cochlear implant is like a tool and facilitate to development of listening and spoken language. It does not mean that now a child knows how to listen and speak. The child needs appropriate intervention to learn to listen, speak, and communicate. Each individual child uses it with different goals and desired outcomes in mind. In order to provide early optimum input, the Auditory Verbal Therapy (AVT) is the best intervention programme (Soman, 2021) ^[13].

Auditory verbal therapy

Auditory-Verbal Therapy is specialized types of therapy programme designed for a child to use the hearing provided by a cochlear implant for understanding the speech and language

(Al Rjoob, K., & Kharraz, B. A. (2022) [2]. It provides systematic instructions to hearing impaired children and their parents and emphasises the development of listening

and language through natural play, singing, daily routines activities (Chatterjee, N., Chatterjee, I., & Sarkar, A. 2019) [4]. It can be seen as.

Auditory	Verbal	Therapy
Children who are deaf, learn how to listen?	Children who are deaf, learn how to talk?	Parent/caregiver attends one to one session with their child and learns how to teach their children in everyday situations

Need & significance of AVT

Hearing and active listening becomes an integral part of communication which is the basic need of any human being. We do not want our students to be deprived of this ability. Both the children had benefited by the aural-oral rehabilitation after cochlear implantation. Being our first priority, continuous assessment followed by hearing aid fitting, speech and auditory training was carried out by trained professionals (Mandal, J. C., Chatterjee, I., Kumar, S., & Chakraborty, S. (2021)) [9]. Hence, it was necessary to continued to auditory verbal therapy for their educational attainment.

A male 4 years 3-month-old child with advanced bionics implant with six sound coding programs in both the ears and was suffering speech and language difficulties. The child got speech therapy for three months after the implantation, and suddenly stopped the sessions due to family reason. The break was continued till the year. After the a year break parents started therapy from another therapist that was AVT. This time AV therapist started the therapy in the proper manner. The child had made very good progress when the child was assessed after three months. Therapist were continuing the guidance to the parents, and parents followed the instructions given by therapist to the child at home. The comparison of the obtained results had shown in the given table 1.

Case report (1)

Table 1: Results of before and after 9 Month gap in habilitation

Sr. No.	Evaluation on the basis of		Before AV therapy	After AV therapy
1.	Mode of communication		Combination of verbal and Non verbal mode & gesture used	Cleared Verbal mode
2.	Mean Length of Utterance		2 to 3 words	Uses 3 to 4 word in Sentence
3	Intelligibility Rating Scale		Grade 5- Speech is difficult to understand with many words unintelligible	Grade 3- Intelligible although noticeably different.
4	Ling’s 6 sound test	Awareness	All Sounds consistent 6 feet level in quite environment.	All Sounds consistent 8 feet level in quite and noisy environment.
		Identification	/ah/, /ee/, /oo/, /m/ - consistent at 6 feet level /s/, /sh/ - at ear level, in quiet environment.	/ah/, /ee/, /oo/, /m/, /s/, /sh/ - consistent at 8 feet level in quiet and noisy environment.
5	Integrated Scale of Development	Listening/Audition	12 to 15 Months	25 to 30 Months
		Receptive Language	12 to 15 Months	43to 48 Months
		Expressive Language	10 to 12 Months	37 to 42 Months
		Speech	10 to 12 Months	37 to 42 Months
		Cognition	25 to 30 Months	43 to 48 Months
		Social communication (pragmatics)	12 to15 Months	43 to 48 Months

Case report (2)

A female 7 years 2-month-old child with Cochlear nucleus KANSO 2 sound processor in the right ear and BTE (Behind the Ear) hearing aid in the left ear was suffering speech, language cognition difficulties. She was the Gujarati speaking family and using some words along with gestures. She had enrolled in the STD-2 in mainstream Gujarati medium school. Her speech and language assessment revealed that she was able to speak animal name, some sound, body parts, colours name, fruits name, kitchen tools & household items, family members name, short story, daily routine words, express their feelings, and some phrase level syntax. After the AVT sessions overall satisfaction of parents was considerable.

on audiological management, (ii) ensuring the immediate fitting of hearing technology, (iii) learning through listening, (iv) providing early and intensive (re) habitation, (v) individualized and systematic teaching, (vi) family involvement, (vii) integrating listening into every aspects of daily life, and (viii) promoting education in mainstream classes with peers who have typical hearing etc. were used (Irene. 2021) [7].








Process of auditory verbal therapy (AVT) intervention

Each AVT session takes time for 45 minutes, twice a week. In the direction of AVT follows the process (i) early identification and intervention, (ii) use of amplification devices, (iii) setting the long term and short-term goal, and (iv) use the oral communication to develop the speech and language. Some parents were confused that the speech therapy and AVT is same. In order the extend the therapist had presented the differences which given in table 2.

Key principles followed during AVT

During the session of both the CI students followed the principles of listening and spoken language that (i) focusing

Table 2: Difference between audiometry, speech therapy and auditory verbal therapy

Key Points	Audiometry	Speech Therapy	Auditory Verbal Therapy
Approach 	Diagnosing approach	Remedial approach	Developmental approach
Focus on 	Focus on hearing aids or implants	Uses all modalities (Visual, auditory, ISL)	Focus on audition
Parents 	Parents not necessarily active participation	Parents not necessarily active participation	Relies on parents' participation
Children 	Developing a treatment plan for the children	Most children have developed listening readiness skills for natural speech and language acquisition	Following the typical stages of speech and language acquisition through audition
Age 	Person with any age	Chronological age as baseline	Hearing age as baseline
Importance 	Individual diagnosis	Individual or group therapy	Individual therapy
Specialist 	Audiologists may specifically examine a child's ear and do tasks such as show a child how to use a hearing aid?	Speech therapists may use exercises to help child improve their ability to form specific sounds and improve their ability to speak.	AV therapist works with a child one-on-one, focusing on their specific listening challenges.

Prosperity of AVT

AV therapist also present the advantages Infront of the parents and aware to them. Therapist told about AVT that it emphasises on audition allows children to develop clear speech as they self-monitor their own production through listening. It concentrates on developing the listening part of the brain. Also focuses on coaching the parents or carers to use the AVT in everyday activities. The main emphasis of the AVT is to develop the child’s social skills and theory of mind. By the taking full exposure of listening child might be able to take part in the mainstream society (Ashori, M. 2022) ^[3]. AVT also facilitate to grow up getting the same education as their peers and have access to anything which s/he want to do. Children with cochlear implants have greater likelihood of being integrated in regular school, they frequently read better than peers who utilize hearing aids. It enhanced educational qualifications allow greater opportunities in further education and employment.

Conclusion

Education plays a vital role in improving the life prospects of persons with disabilities. In order to, the socialization of children with disabilities through education, assumes an important role in our society (RPwD, 2016). As per Census 2011, there are about 20.42 lakh children in the age group of 0-9 years have some form of disabilities, i.e. either congenital or acquired. Critical period of the child when risk cases can be detected and therapeutic intervention for achieving necessary rehabilitative response undertaken to empower the child. Indeed, the dire need to provide quality childhood intervention early in life which helps to empowerment, skills development and rehabilitation (NEP, 2020) ^[11]. In order to extend ccochlear implant and auditory-verbal therapy has become the golden standard in habilitating children with profound hearing loss. Further the study reveals that, even after a gap in rehabilitation, the listening, speech and language skills can be improved with intensive therapy.

References

- ADIP. Ali Yavar Jung national institute of speech and hearing disabilities (Divyangjan), Mumbai, 2022. Retrieved November 8, 2022, from <http://adipcochlearimplant.in/impact-of-cochlear-implants.aspx>
- Al-Rjoob K, Kharraz BA. Public awareness of speech - language pathology and audiology: A pilot study in Jordan. *La Tunisie medicale*, 2022. Retrieved on

- November 8, 2022, from <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9552244/>
- Ashori M. Impact of Auditory-Verbal Therapy on executive functions in children with Cochlear Implants. *Journal of Otology*. 2022;17(3):130-135. <https://doi.org/10.1016/j.joto.2022.04.002>
- Chatterjee N, Chatterjee I, Sarkar A. Impact of auditory verbal therapy in children with Cochlear Implant. *Bengal Journal of Otolaryngology and Head Neck Surgery*. 2019;27(3):204-212. <https://doi.org/10.47210/bjohns.2019.v27i3.9>
- Chowdhry J. Auditory Verbal Therapy. *An International Journal of Otorhinolaryngology Clinics*, 2010;2(2):157-160. <https://doi.org/10.5005/jp-journals-10003-1030>
- Cochlear. Kanso 2 Digital Sound Processor: Hearing implant. 2022. Retrieved on November 8, 2022, from <https://www.cochlear.com/us/en/home/products-and-accessories/cochlear-nucleus-system/nucleus-sound-processors/nucleus-kanso-2>
- Irene. A Case Study of Cochlear Implant in Children, 2021. Retrieved on November 8, 2022, from <https://www.saera.eu/en/2017/03/08/a-case-study-of-cochlear-implant/>
- LSLS Domains of Knowledge. The AG Bell Academy for Listening and Spoken Language. Home to Listening and Spoken Language Professionals, 2022. Retrieved on November 8, 2022, from <https://agbellacademy.org/certification/lsls-domains-of-knowledge/>
- Mandal JC, Chatterjee I, Kumar S, Chakraborty S. Efficacy of auditory verbal therapy on listening and linguistic skills of a child with bimodal hearing. *Bengal Journal of Otolaryngology and Head Neck Surgery*. 2021;28(3):277-281. <https://doi.org/10.47210/bjohns.2020.v28i3.293>
- NCF. Ministry of Education. Major Initiatives, 2022. Retrieved on October 26, 2022, from <https://www.education.gov.in/en/national-curriculum-framework-foundational-stage-2022>
- NEP. National Education Policy. 2020. Retrieved on 18th Oct 2020 from https://www.education.gov.in/sites/upload_files/mhrd/files/NEP_Final_English_0.pdf
- Rights of Persons with Disabilities Act Status and implementation in the India, 2016. Retrieved on 22nd Oct 2022 from:

- http://www.upfcindia.com/documents/rpwd_101017.pdf
13. Soman U. A Cochlear Implant is a Tool, Like a Pencil – Listening Together, 2021. Retrieved on November 8, 2022, from <https://www.listeningtogether.com/2021/02/24/ci-is-a-tool/>
 14. WHO. Deafness and hearing loss. World Health Organization, 2022. Retrieved on November 8, 2022, from <https://www.who.int/news-room/fact-sheets/detail/deafness-and-hearing-loss>