A STUDY OF SPEECH DEVELOPMENT OF CHILDREN WITH COCHLEAR IMPLANT

BY
AMMARA MAJEED
100247010
HADIA KIRAN
100247005
M.A Special Education

DEPARTMENT OF SPECIAL NEEDS EDUCATION
SCHOOL OF SOCIAL SCIENCES & HUMANITIES
UNIVERSITY OF MANAGEMENET AND TECNOLOGY
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Ammara Majeed
100247010
Hadia Kiran
100247005

DEPARTMENT OF SPECIAL NEEDS EDUCATION
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Certificate of Approval

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Dr.ZahidaPerveen
Supervisor

Prof. Dr. Abdul Hameed
Chairman

Prof. Dr. Abdul Hameed
Dean

Date:

Dedication

We dedicate our research to our parents

Who took us to the path of knowledge.

Their continuous support and encouragement

Strengthen us to embark on this uphill task.

Acknowledgement

All praises for Allah Almighty, the most gracious and merciful who is forever a source of knowledge and guidance for humanity.

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A Study of Speech Development of Children with Cochlear Implant

Abstract

Children with cochlear implant can develop their speech after implantation with the help of speech therapy. The purpose of this study was to study speech development patterns of children with cochlear implant and study proved that speech therapy is very important after implantation for the better outcomes of surgery. In this descriptive research, researcher developed the questionnaire on the basis of literature review and hypothetical framework. The questionnaire consisted on 30 items which covered the different aspects of speech as, phonemes, vowels, voiced and unvoiced consonants etc. Through this study we find out the relationship between age of the students with cochlear implant and the time period of the student with cochlear implant. The data of 25 children with cochlear implant were collected from speech therapists. The reliability of the instrument was found as 0.85. The data were analyzed and results indicated that the students with hearing impairment improved their speech after implant. However they are still suffering with recognizing voiced and unvoiced consonants and in recognizing the initial and final sounds of the words.

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CHAPTER I

Introduction

Hearing is the only sense which helps the person to understand and discriminate the sounds of the environment. Hearing impaired person lack the ability to hear the sounds below a certain loudness level. Deaf person not only remain unable to hear sounds but also remain fail to recognize and discriminate the sounds.

IDEA (2004) defines a hearing impairment as impairment in hearing, whether permanent or fluctuating, that adversely affects a child's educational performance.

According to the National Association of the Deaf (NAD) deafness is the audiological condition of not hearing." The NAD includes people with extremely partial hearing who cannot rely upon it for relaxed communication. Deafness can be caused by genetics, severe illness in babyhood such as rubella (German measles) or prenatal kind illnesses, exposure to long-term loud noise or exposure to sudden tremendous noise, preventable prenatal substance abuse, physical or brain and he head injury, or the ear, age-related hearing loss.

According to the Quittner,(2004) there are four types of hearing loss:

Conductive Hearing Loss
Hearing loss caused by something that stops sounds from getting through the outer or middle ear. This type of hearing loss can often be treated with medicine or surgery.

Sensorineural Hearing Loss
Hearing loss that occurs when there is a problem in the way the inner ear or hearing nerve works.

Mixed Hearing Loss
Hearing loss that includes both a conductive and a sensorineural hearing loss.

Auditory Neuropathy Spectrum Disorder
Hearing loss that occurs when sound enters the ear normally, but because of damage to the inner ear or the hearing nerve, sound isn't organized in a way that the brain can understand. (National Institute of Deafness and Other Communication Disorders)

According to Jimenez MS (2006), there are four major ways in which hearing loss affects children:

1. It causes delay in the development of receptive and expressive communication skills (speech and language).
2. The language deficit causes learning problems that result in reduced academic achievement.
3. Communication difficulties often lead to social isolation and poor self-concept.
4. It may have an impact on vocational choices.

A child starts to receive different sounds and observes his soundings and learns from his environment in the very early stages of life. There are important factors for the typical development of speech and language. Early in life auditory input and communication are essential for the normal development of language, cognition and behavior as it is cited by (Quittner, 2004).

If child has any type of impairment then he will not be able to receive the essential milestones for all the types of development as cognition, language, behavior etc. According to the Quitter (2004), Deaf children who experienced significant disturbance in auditory input, are likely to show delays not only in the production of sounds or oral language but in other important aspects of development such as visual attention and behavioral control.

According to the Amie Alley (2001) Speech perception totally depends on speech enlargement. If speech is perceived properly, then a child's speech development will be positively influenced.

The baby learns language in one way only, and that is by hearing language as the parents talk and talk to it. The more a parent can talk to a child, often repeating the same words, the same phrases, the same structures over and over, the sooner the child will learn language and develops his speech. According to Henri Cohen (2008) speech and language develops in the very first years of life through normal family interaction. There are some major steps for the speech development and if someone is not following them then it will not be considered as a typical development of speech.

In the age of 0-2 months the sounds used are simply the natural sounds that babies make, e.g. crying, coughing, burping, and swallowing. These vocalizations usually occur when the baby

is comfortable and content in the age of 2-5 months. In the age of 4-8 months the infant engages in longer and more continuous streams of vowel or consonant sounds.7-13 months, the babbling stage. This is the stage most commonly thought of as being associated with language development. 12-24 months in this stage a child used the variety of single words are used to express feelings, needs, wants, and so on. 20-30 months, the child now begins to produce two-word combinations such as *daddy ca*r etc. 28+ months, the child extends their two-word utterances by incorporating at least another word, e.g. *me kiss mummy, he hit ball*. In reality children may add up to two more words, thereby creating utterances as long as four words.

The five most important skill areas of speech development are: Phonemic Awareness, Phonics, Fluency, Vocabulary, and Comprehension.

It is stated by the Strach (1998) there are different ways to make the hearing better; one of them is cochlear implant. A cochlear implant is very different from a hearing aid. Cochlear implants bypass damaged portions of the ear and directly stimulate the auditory nerve. The cochlear implanted in those patients have profound hearing loss.

Signals generated by the implant are sent by way of the auditory nerve to the brain, which recognizes the signals as sound. Hearing through a cochlear implant is different from normal hearing and takes time to learn or relearn. It allows many people to recognize warning signals, understand other sounds in the environment.

Cochlear implant is a small electronic device that can help to provide a sense of sound to a person who is profoundly deaf or severely hard-of-hearing. The implant consists on two portions, one is an external part that fits at the back the ear and a second portion is surgically positioned

under the skin. An implant does not restore normal hearing. Instead, it can give a deaf person a helpful representation of sounds in the surroundings and help him or her to understand verbal communication.

The children who receive cochlear implant, shows impressive results in restoring the auditory input as recognition and production. According to the Kristen Marcial (2004) cochlear implant shows tremendous promise in restoring auditory information to deaf children concomitant improvements in speech recognition and improvements.

If the cochlear implant is not received in early ages then child become the victim of behavioral problems as it is stated by the Kriston Marcial (2004) hearing impaired children are at large risk of behavioral, emotional and academic delays.

The candidates of cochlear implant are those who cannot get any advantage by the use of other devices because they have severed type of hearing loss. When cochlear is implanted then it becomes more useful for the development of speech and language development of the implanted children as it is stated according to the Tyler (1993) that one of the primary benefits intended for children receiving CIs is an improvement in communication skills.According to Kelsy(1992).

Cochlear implant shows improvements in two areas of speech (a) Perception and (b) Production.

Cochlear implant is not the work like the interpreter which interprets the sounds, or not can understand the complex spoken language. It just makes better the perception of sounds, reduce the level of Impairment and enhance the ability to hear. (Marie-eve, 2008)

Cochlear implants have been very successful in restoring partial hearing to profoundly deaf people. Many individuals with implants are now able to exchange a few words and understand speech without lip-reading, and some are able to talk over the phone. Children with implants can develop spoken language skills and attend normal schools (i.e., schools with normal-hearing children).

Statement of the Problem

The researchers intended to investigate development of speech in children with cochlear implant.

Objectives of the study

The study was conducted to:

1. Find out the patterns of speech development in children with cochlear implant.
2. Investigate the relationship of age of children with hearing impairment and speech development after implant.
3. Find out the relationship between period of implantation and speech development of children of with cochlear implant.
4. Find out the communication skills of children with cochlear implant with their parents and siblings.
5. Study the impact of cochlear implant on environment adjustment.

Questions of the study

The study is an effort to seek the answers of the following questions:

1. Is the Cochlear Implant helpful in developing speech?
2. What is the relationship of age of children with hearing impairment and speech development after implant?
3. What is the relationship between period of implantation and speech development of children of with cochlear implant?
4. Does the cochlear implant have any impact on communication skills of children?
5. Do the children with cochlear implant show the better social skills?

Significance of the study

The study is significant for the field of special education on the following grounds:

1. This study will help to identify the positive effects of implanted electrodes on the development of speech.

2. The study will be help full for parents of children with hearing impairment. They will get knowledge how cochlear implant can change the quality of their child's life.

3. The study will also benefit the speech therapists working with children with cochlear implant.

Methodology of the study

Population

Population is defined as a group of human beings to which the researcher wants to generalize the findings of the study. The population of this research was children with cochlear implant visiting speech therapist for therapy.

Sample

Sample is the mean of selecting a number of individuals for a study which represent the large group from which they are selected. The sample for this was 25 children with cochlear implant visiting speech therapist for therapy.

Instrument

Self developed questionnaire was used to collect data from speech therapist of children with cochlear implant. This questionnaire was developed on the basis of hypothetical framework.

Type of research

This is a descriptive research.

Data collection

Researchers collect data by using self developed questionnaire from speech therapists.

Data analysis

Data were analyzed. Findings, results and conclusions were drawn on the basis of data.

Purpose of the study

The purpose of the study is to take information about the development of speech children with Cochlear Implant about their speech development.

Procedure of the study

The presented study is descriptive. The population of this study was speech therapists of 25 children with cochlear implant. Self developed instrument of the study was the questionnaire based on questions about different speech aspects.

DeLimitations of the study

The limitations of the study were:

Researchers have developed the questionnaire by themselves, which is not standardized instrument. The sample size was delimited to 25 children with cochlear implant due to time constraints.