Chapter 10

HEARING LOSS IN CHILDREN AND EARLY DIAGNOSIS & EARLY INTERVENTION

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INTRODUCTION

Hearing loss is one of the most common congenital disorders. Hearing loss, which affects nearly all areas of development, especially speech and language development, if not diagnosed early. It is the result of pathologies that occur in the outer, middle, inner ear, and auditory pathways for various reasons and the resulting peripheral voices and speech voices cannot be detected. The impact of sensorial experience on neural structures and functions vary by age. The effect of peripheral sensorial activity loss is much more prominent and important when it occurs during the critical developmental period. Thus, the success of interventions performed for hearing loss within this period (ie. cochlear implant) is associated with a better development of neural functions (1).

The factors during the prenatal, natal and postnatal periods of infants and children cause the emergence of hearing loss with different traits. The risk factors listed below, are the main causes for the formation of hearing loss in children. If the child is affected by even two of these factors, the risk of hearing loss is over 90%.

These factors include;

1. The family history of hearing loss occurring in childhood
2. Premature birth, low birth weight (1500 grams or less)
3. The syndromes accompanied by characteristic hearing loss
4. Infections such as bacterial meningitis, encephalitis, mumps
5. Cytomegalovirus, herpes, rubella, syphilis, toxoplasma infections
6. Hyperbilirubinemia, persistent pulmonary hypertension secondary to mechanical ventilation
7. Neurofibromatosis, osteoporosis, Usher's syndrome

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brain in infants requires a training program that supports the development of amplification and auditory skills. In case of infants with hearing loss, in the absence of sounds, the brain reorganizes itself by receiving stimuli from other senses (primary visual sensation) and its auditory neural capacity decreases. This process is called cross-modal reorganization. In the first year of life, the brain is stimulated by amplification and subsequent implantation with more auditory inputs, and auditory capacity increases. Early amplification and implantation synchronize the activity in the cortical regions (17,28,29,44).

CONCLUSION:

With the development of newborn screening, early diagnosis and intervention programs, the number of infants and young children undergoing cochlear implantation is ever increasing. With early cochlear implantation, effective periods of critical period (0–2 years), which are very important for speech and language development of hearing loss infants, are provided. Also, children underwent implantation under 2 years of age have the chance to catch up their normal-hearing peers. For this reason, it is very important to be exposed to speech voice as early as possible for speech and language development.

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