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Cochlear Implantation in Children

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Padmashree awardee Prof. (Dr) J. M. Hans of Rainbow Childrenâ??s Hospital shares his views on Cochlear Implantation in Children



To have the best results of cochlear implant the child has to be diagnosed for hearing loss at the earliest. Today, owing to technological advancements tests can be done on a one-day-old baby by using an universal screening method using an OAE.

An OtoAcoustic Emission (OAE) is a low-level sound that is emitted by the cochlea triggered by an auditory stimulus. These sounds can be used to test the function of the cochlea and understand the level of the damage in the hair cells function and other parts of the ear, including the auditory nerve.

If the baby fails in an OAE test, a Brainstem Evoked Response Audiometry (BERA) test needs to be done. A healthy hearing nerve transmits nerve impulses at a particular speed from the inner ear to the brainstem. The BERA test determines the rate at which the nerve impulse travels and indicates the occurrence of hearing loss. This will indicate the level of hearing loss. However mild hearing loss may not be detected by the test.

Once diagnosed, the child should be put on hearing aid at the earliest, so as to keep the auditory nerves active till a Cochlear implantation is done. The cochlear implant should be done at the age of eight months if there is no response with hearing aids on both ears. Following this, a meticulous speech therapy is required for the child to understand what the child is hearing and to start speaking.

The speech therapy may go on for more than a year at times even if the cochlear implant has been done as early as eight months.

The child starts hearing in the mother’s womb after the seventh month of pregnancy and if the baby’s hearing is not developed by the eighth month the child is born deaf. The need for cochlear implant in this country is enormous as we have about 40 Lac children who are in need for cochlear implants. In my 20 years of experience in the field of Cochlear Implantations I have performed only 3000 implantations. This clearly shows the lack of awareness on Cochlear implantations.

The best results with a cochlear implant can be observed if the implantations is done between eight months and 2 years of age as 80 percent of the brain develops during this period of life. The results of the Cochlear implants done within the age of five will also be good but the child will require a lot of speech therapy. For children between the age of five and ten, Cochlear implantation may help them in hearing and understanding but however will have affect their speech. And in children above the age of ten, Cochlear implantations will only help them in hearing. They will also be able to understand things to an extent but will not be able to speak at all.

The delay in getting a cochlear implant gradually affects the sense of hearing, understanding and speech. Hence early detection and early treatment will give best results with regards to Cochlear implantation.