Newborn Hearing Screening

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Background: Congenital hearing loss has a major impact on both cognitive and speech-language development which eventually leads to impaired communication and a lower socio-economic status.

Objective: To evaluate the result of newborn hearing screening.

Design: A Retrospective Study.

Setting: NICU and Post-Natal Ward, King Hamad University Hospital, Bahrain.

Method: A total of 1,834 babies were screened at the time of discharge, using Transient-Evoked Oto-Acoustic Emissions. Infants who failed the screening test were scheduled for a second screening test. Infants who failed the second screening test were tested with Auditory Brainstem Response (ABR).

Result: Five infants were identified with hearing impairment out of 1,834 or 272 per 100,000. The incidence was 0.27% in the infants screened from October 2012 to December 2015 in the hospital.

Conclusion: Five infants were identified with hearing loss according to JCIH standards and advised early intervention. The study could be used to plan services and strategies in the hospital for newborns identified with hearing loss at a very early age to offset the long term consequences of hearing loss.


Hearing loss is a well-documented congenital abnormality. It has an impact on the quality of life of the patient, the family members and society. Hearing loss is known to affect both cognitive and speech-language development which eventually lead to impaired communication. A congenital hearing loss could be a handicap if not identified early.

Newborn hearing screening plays a major role in early detection of hearing loss, especially in those at risk. Such a screening was conceived based on two concepts: the critical period for optimal language skills development and early intervention produces better outcomes; managing hearing impairments have been shown to improve communication. In 2007, the Joint Committee on Infant Hearing (JCIH) recommended universal detection of hearing loss in newborns and infants and stated that all infants with hearing loss should be identified before three months of age and receive intervention by six months. To gain access to most infants, the JCIH endorsed evaluation before hospital discharge. According to a technical report by American Speech-Language-Hearing Association (ASHA) in 2004, hearing loss has a severe impact on children before speech development. By intervention at the earliest age possible, this developmental gap, caused by hearing loss, could be bridged. Studies have suggested that earlier interventions had better outcomes.

Newborn hearing screening is universally performed using Oto-Acoustic Emissions (OAE) and Auditory Brainstem Response (ABR). Newborn infants at risk should be tested as soon as possible; those could be having family history of deafness or admitted to neonatal intensive care for more than 5 days or ECMO, had assisted ventilation, exposed to ototoxic medications (gentamycin and tobramycin) or loop diuretics (furosemide/Lasix), and had hyperbilirubinemia which required exchange transfusion; other condition which put infants at risk could be in utero CMV, herpes, rubella, syphilis and toxoplasmosis, craniofacial anomalies and syndromes, such as neurofibromatosis, osteopetrosis and Usher syndrome, Waardenburg, Alport, Pendred and Jervell and Lange-Nielson, Hunter syndrome, Friedrich’s ataxia, and Charlotte-Marie-Tooth syndrome.

Most units utilize the two-phase newborn hearing strategy. The first phase involves the initial screening of the infant using TEOAE followed by the second phase, the retest. If an infant fails the retest screening, the infant is referred for a diagnostic