Fall 10-1-2020

Audiological assessment in infants with hyperbilirubinemia

Dr.Saksham Dhawan

Audiological assessment in infants with hyperbilirubinemia

Introduction: Hyperbilirubinemia affects a majority of term and preterm infants. One of the major concerns in infants with hyperbilirubinemia is the impairment of the hearing mechanism due to bilirubin induced neurological damage.
Auditory system is very sensitive to even low risk levels of elevated bilirubin. Lipid soluble unconjugated bilirubin (UB) crosses blood brain barrier (BBB) and cell membranes which is the main mechanism of injury. UB not removed by organic anion efflux accumulates within the cytoplasm and is essentially toxic to the cells.
Exposed neurons undergo increased oxidative stress and ultimately, presynaptic degeneration. If neuronal supporting cells are exposed, inflammatory markers are secreted which in turn leads to an increase in BBB permeability.
Early detection of hearing loss can prevent permanent deficits if interventions are done at an early stage. This would also lead to better speech development and ultimately a better quality of life for the individual.The aim of this study is to determine whether elevated bilirubin levels is a risk factor for cochlear damage and sensorineural hearing impairment in infants.

OBJECTIVES:
To evaluate hearing in pre term and term infants with hyperbilirubinemia
To compare between hearing ability of infants with hyperbilirubinemia with infants with normal bilirubin levels.
To analyze difference in hearing in infants with elevated total bilirubin and elevated unconjugated bilirubin.
To analyze the ABR, Otoacoustic emission (OAE) of infants at neonatal period and follow up the ones which are abnormal at an interval of 3 months and at 12 months to detect ANSD and chronic Auditory toxicity.
To detect whether the hearing loss is transient /permanent.

STUDY DESIGN: Prospective study in retrospect with an embedded case control design.

STUDY POPULATION: All live births admitted in KMC Attavar satisfying the inclusion and exclusion criteria.