Prevalence of hearing loss in Neonatal Intensive Care Unit (NICU)

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INTRODUCTION

- Significant hearing loss is the most common disorder at birth, occurring in 1 to 2 newborns per 1000 in the general population and 24% to 46% of newborns who are admitted to Neonatal Intensive Care Units (NICUs)***. (AL –Kandari , Alshuaib., 2007)***.
- Neonates in (NICUs) face various problems including hearing impairment due to problems such as prematurity, low apgar scores, infection, hyperbilirubinemia ,mechanical ventilation & ototoxic medications. ***(Berg et al., 2005)***
- **Ototoxic medications** are retained for a longer period and in a higher concentration in the inner ear fluids than in any other tissue or fluid, especially in individuals with liver or kidney dysfunction. ***(Weinstein., 2013).***
- **Bilirubin**, at high levels, can damage retrocochlear structures including brainstem and auditory nerve fibers. ***(Akinpelu et al .,2013).***
- Premature babies face problems due to the underdevelopment of their respiratory system, which requires more and longer **oxygen therapy**. (**Biwlecki *et al., 2011)* .**

AIM OF THE WORK

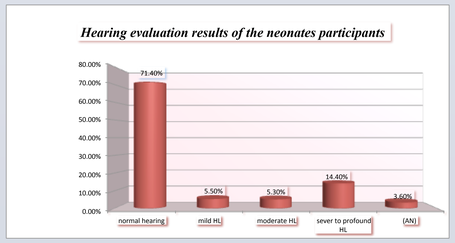
- Detection of the prevalence and Identification of the risk factors of hearing loss in neonates admitted to (NICUs).

SUBJECT & METHODS

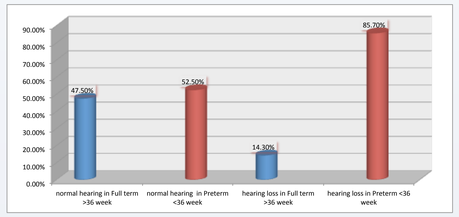
- All neonates admitted to the (NICU) at the Hospital of Menoufia University between January 2015 and January 2016, were included in the study and the study was carried out on 112 newborns.
- Complete prenatal, natal and postnatal history was taken.
- General examination & local examination for craniofacial abnormalities suggesting hearing loss then otoscopic examination for vernix obscuring the view of the tympanic membrane.
- At the time of discharge from the (NICU), all neonates were tested for hearing loss using the Transient Evoked Otoacoustic Emission (TEOAEs), followed by Auditory Brainstem Response test (ABR), using (Interacoustics Eclipse *EP25*).

RESULTS

- among the 112 neonates (no=112) , included in the study, 80 (71.4%) showed normal hearing , 28 (25%) showed hearing loss and 4 (3.6%) showed Auditory neuropathy (AN).
- Fig(1):**Hearing evaluation** results of the neonates participants

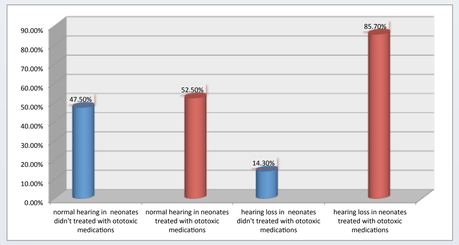


- Fig.(2):Relationship between **Gestational age** and hearing loss.



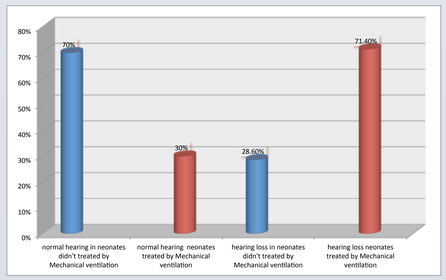
- there was statistically significant relationship between **prematurity** and hearing loss (p=0.002).

- Fig.(3): Relationship between **Ototoxic medication** and hearing loss.



- There was statistically significant relationship between **Ototoxic medications** and hearing loss (p=0.002).

- Fig.(4): Relationship between **Mechanical ventilation** and hearing loss.



- There was statistically significant relationship between **Mechanical ventilation** and hearing loss (P ≤0.001) .

DISCUSSION

- The present study showed that the prevalence of hearing loss among neonates admitted to NICU was 25% which was close to the study result conducted by Sudhir et al 2002 (22%) .
- Whereas prevalence of Hearing loss was (13.7%) in the study done by Shahnaz et al 2012 , and (13.5%) in Maisoun et al 2003 , which is less as compared to the present study.
- On the contrary prevalence of Hearing loss was (29.1%) in the study done by Gupta et al 1991 which is higher as compared to the present study.
- The reason for these differences might include different screening protocols and real difference in hearing loss prevalence in the world.

CONCLUSIONS

- There was statistically significant relationship between hearing loss & (gestational age, Birth weight, Mechanical ventilation , Ototoxic medication ,Hyperbilirubinemia, Birth asphyxia,, Craniofacial abnormalities Family history of hearing loss and Consanguinity).
- On the contrary, there was no significant relationship between hearing loss & (sex and Mode of delivery).

ACKNOWLEDGMENT

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  - *special thanks must also go to the NICU personnel for their full cooperation.*

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