Newborn diagnostic auditory assessment from NHSP during COVID lockdowns in England

Mrs Auboney Dineen 1, Chief Audiologist - Auboney.Dineen@alderhey.nhs.uk
Dr Sudhira Ramrayake 1, 3, Consultant Audiovestibular Physician
Mrs Jane Hillard 1, Chief Audiologist
Mrs Neera Chopra 1, Chief Audiologist
Mrs Maureen O’Hare 1, Chief Audiologist & Audiology Manager
Prof Soumit Dasgupta 1 4, Consultant Audiovestibular Physician

1. Department of Audiovestibular Medicine & Audiology | Alder Hey Children’s Hospital | Liverpool, UK
2. School of Medicine | University of Liverpool | Liverpool, UK

Background

- During the COVID Pandemic, England had 3 national lockdowns from 23rd March 2020 to March 2021.1
- The national Audiology organisations issued various interim guidelines at different stages of the pandemic.
- Alder Hey Children’s Hospital provide diagnostic Auditory Brainstem Response (ABR) tests to 2x Newborn Hearing Screening Programme (NHSP) sites, namely Liverpool and West Lancashire, and babies referred from Isle of Man.
- In addition to the diagnostic services, we provide a full medical deafness aetiology assessment (as per national guidelines from the British Association of Audiological Physicians 2) and auditory rehabilitation service.
- During the COVID lockdowns, we adopted interim diagnostic pathways for bilateral and unilateral NHSP referrals, with approval from the Hospital’s ethical and COVID taskforces.

Methods

- A retrospective case note review, registered with the Governance and Quality Assurance Department, was undertaken of all newborns who had at least one post-NHSP auditory assessment (Transient-Evoked Oto-Acoustic Emissions, TEOAE and/or ABR) during the 12-month period of COIVD lockdowns.
- All diagnostic equipment undergo regular calibration as per national and departmental guidelines.
- Data collected: NHSP referral details, diagnostic auditory test details, type and degree of hearing loss detected from auditory tests, deafness aetiology.

Results

Demographics

- Newborn cohort that had at least one auditory assessment: n = 442
  - Male: Female = 268 (61%) : 174 (39%)

NHS Referrals

- Bilateral Well-Babies
- Unilateral Well-Babies
- Bilateral NICU-Babies
- Unilateral NICU-Babies
- NHSP Contraindications

NHSP area coverage

NHSP Contraindications:
- Newborns
- NICU - Neonatal Intensive Care Unit prolonged stay
- Craniofacial condition (Microtia / Atresia)

Post-NHSP auditory tests

Hearing Loss

- Right unilateral mild Glue Ear
- Right unilateral Mixed HL
- Left unilateral Otitis (Middle ear)
- Left unilateral SNHL
- Right ANSD + Left SNHL
- Bilateral Severe-Profound SNHL
- Bilateral mild SNHL
- Bilateral Well-Babies

Deafness Aetiology & Amplification

- Bilateral SNHL = 7
- Right ANSD + Left SNHL = 1
- Johnson-Blizzard syndrome
- Bilateral Severe-Profound SNHL = 1
- Right Unilateral moderate Mixed hearing loss
- Right unilateral moderate Glue Ear
- Right bilateral moderate Conductive Hearing Loss
- Right unilateral moderate Mixed hearing loss
- Right bilateral moderate Conductive Hearing Loss
- Right unilateral moderate Glue Ear
- Right Unilateral moderate Mixed hearing loss

Conclusions

- By adopting modified interim pathways, it was possible to deliver a safe diagnostic auditory NHSP pathway during the COVID pandemic.
- There was no compromise in time-critical aetiological investigations (e.g. urine for CMV) or auditory interventions (e.g. cochlear implant referrals).
- Close multi-disciplinary working ensured completion of both audiological and medical assessments for babies referred from newborn hearing screening.

References