

THE IMPACT OF ADDING SEDATED AUDITORY BRAINSTEM RESPONSES (ABR) USING INTRANASAL DEXMEDETOMIDINE TO THE PAEDIATRIC AUDIOLOGY ASSESSMENT PORTFOLIO AT SHEFFIELD CHILDREN'S NHS FOUNDATION TRUST.

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Background; Sedated Auditory Brainstem Evoked Response testing (ABR) using Intranasal Dexmedetomidine was introduced at the Trust in January 2019 in the Theatre Assessment Unit (TAU). Previously the majority of the ABR's were performed on children aged under natural sleep, with a general anaesthetic (GA) as the only alternate if unsuccessful.

Issues for natural sleep ABR;

1. Child may not sleep / stay asleep (service tests > 3 months of age generally).
2. Parent pressure to get the child to sleep/ keep them asleep.
3. Pressure for the audiologist to complete the full assessment without waking the child.



Issues for ABR under (GA)

1. Risks associated with GA.
2. Parental concern.
3. Complex to organise joining theatre lists, limited time allocated for testing.
4. Lengthier GA for the child.
5. Reduction in list capacity for theatre, TAU and Hearing Services for the session.
6. Not always successful, due to electrical interference.

Positive Impacts of sedated ABR using Intranasal Dexmedetomidine;

1. 100% success rate to date. (n = 33)
2. Smooth, quick recovery process, no sickness, can eat immediately.
3. Fewer risks than GA.
4. Positive feedback from all involved.
5. Parent with the child throughout.
6. More relaxed session for parents.
7. Improved test environment for audiologist.
8. A new option for older children (age range tested 1 - 9 years of age)
9. Results and management discussed with the family immediately.
10. Time available for additional testing/ procedures.
11. Cost and time effective.
12. Fewer appointments, important in Covid-19 pandemic. Referral offered at first behavioural test failure if clinically indicated.
13. Additional audiometric frequencies tested to support further management Cochlear Implant referral, Hearing Aid Fitting.
14. Able to discharge children with clear results and manage those with a confirmed hearing loss.
15. Other services awaiting the results can manage the child effectively, e.g. Speech and Language Therapy, Developmental Assessment Clinic and ENT.

"Worked a heck of a lot better than natural sleep or GA"
Parent April 2019

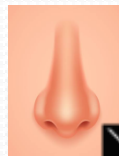
"Because of XXX having a syndrome I thought that the other tests used to test him did not suit him."
Parent September 2019

"The test today was very good and I hope to see things start moving to help xxx have a better life. Thank you"
Parent September 2019

"Able to discuss the results and agree a management plan with parents while the child is still asleep"
Teresa Loxley, Head of Hearing Services, January 2020

"This innovative approach allows a continuation of timely diagnostic services when theatre resources are scarce. It also provides a safer pathway for children with excellent parental feedback."
Mr Rohit Verma, Consultant ENT Surgeon, October 2020

"Sleep is all the patient needs. No GA is a win-win for all."
Dr Christine Kirton, Consultant Anaesthetist, October 2020



Dexmedetomidine 3mcg/kg administered intranasally .

Median sedation onset 20 minutes



Next steps:
Relocate sedated ABR's to Hearing Services to release capacity in TAU.

Acknowledgements:
With thanks to all parents for their feedback and written consent for the photographs to be taken and reproduced.

References: Reynolds J. Retrospective Comparison of Intranasal Dexmedetomidine and Oral Chloral Hydrate for Sedated Auditory Brainstem Response Exams. Hospital Pediatrics March 2016, 6 (3) 166-171; DOI: <https://doi.org/10.1542/hpeds.2015-0152>
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