Cochlear implant candidature for children

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Nottingham Auditory Implant Programme

• Based at Ropewalk House

• Surgery, evoked potentials assessment and imaging undertaken at QMC

• Our website:
  http://www.nuh.nhs.uk/our-services/services/nottingham-auditory-implant-programme/
PTA 1
Aetiology: Unknown

PTA 2
Aetiology: Unknown

Frequency (Hz)

Hearing Level (dB)
Aetiology: ANSD

Aetiology: Meningitis

**PTA 3**

**PTA 4**

**ON YOUR GREEN SHEET**

**ABR results**

We are here for you
Are you able to refer for CI?

- Yes / no
- Why? (in a couple of words)
- Department
Why we are here

- BAA electronic survey on implantable devices (Dr Harriet Crook)

- 152 responses – yet to be published

- Learning outcomes
  - Audiologists want / need more CI training
  - Audiologists want / need more CI information to support patients
Perhaps this explains…

• Estimate of numbers for CI in UK
  – NICE (2009): 650,000

• BCIG records: 12,000 to date
Generic paediatric assessment

Initial assessment (audiology)

Local assessments

Initial TOD

F/U TOD

F/U Audiology

Initial SLT

F/U Audiology

F/U SLT

Evoked potentials

Imaging/MRI/CT

MDA

Surgery
Who can refer?

- Outlined in NHS England’s Service Specifications for Cochlear Implants D9a
  - [https://www.england.nhs.uk/commissioning/spec-services/npc-crg/group-d/d09/](https://www.england.nhs.uk/commissioning/spec-services/npc-crg/group-d/d09/)
    - GP
    - NHS or private audiology service
    - ENT service
    - Paediatrician
Who to refer

• You do **not** have to demonstrate that a person meets NICE guidance prior to referral

• Where severe/profound **functional** deafness is suspected or confirmed
  – PTA does not always reflect performance
  – PTA may or may not be in severe/profound range

• See our website for referral guidelines:
CI candidature

- Governed by NICE TA166 (January 2009)

- Unilateral cochlear implantation recommended for:
  - Severe to profound deafness
  - Hearing only sounds > 90 dB HL at frequencies of 2 and 4 kHz without acoustic hearing aids

- Inadequate benefit from acoustic hearing aids:
  - Adults: a score of ≤50% on BKB sentence testing at a sound intensity of 70 dB SPL
  - Children: speech, language and listening skills not appropriate for age, developmental stage and cognitive ability

- Bilateral cochlear implantation recommended for:
  - Children for whom it is clinically appropriate
  - Adults with multisensory impairment (primarily deaf-blind)

- Outside of these criteria, exceptional request for funding can be made
Referral criteria ≠ implant criteria

• Not always the same

• Functional hearing is key eg ANSD
  – Evidence of what the child can hear
  – What meaning they can ascribe to sound
There is no upper or lower age limit for referral
When to refer: babies and young children

- Duration of deafness an indicator of eventual outcome
- For prelingually deaf children, early implantation is associated with better spoken language
When to refer: babies and young children

- As soon as functional severe/profound deafness suspected
- May not be seen by us until 4-6 months
- We will work with local services in interim to provide support and advice as required
- Don’t delay referral if challenges arise
  - contact your CI centre to discuss
What to do before referral

• Trade-off between obtaining full assessment and introducing delay?

• Carry on assessing and supporting whilst making the referral

• Other health needs should be managed as well as possible
What to do before referral: hearing assessment

- Hearing assessment as full as possible:
  - Test >90dBHL
  - Include 2 and 4 kHz
  - Preferably in the absence of conductive overlay
  - *We realise this is not always possible!*
  - Comment on reliability of tests
  - We may ask for further assessment
What to do before referral: hearing aids

- Essential to fit aids early
- Optimise aid fitting as early as possible
- NICE guidance stipulates 3 month optimised trial
  - this does not have to be completed prior to referral
  - It can be flexed if clinically appropriate
What to do before referral: hearing aids

• You are the hearing aid experts

• We may ask your opinion on review of fitting or hearing aid specification

• We may request you consider revision of hearing aid to optimise amplification

• We welcome your advice on appropriateness
What to do before referral: managing congestion / CHL

• Criteria reflects permanent impairment

• Conductive overlay should be treated wherever possible

• Proactive management at early stage reduces time to treatment
  – We have a low threshold for grommet insertion
  – Please ask your ENT surgeon to discuss any queries with one of our ENT surgeons
What to do before referral: consider:

• Genetic counselling

• MRI scanning
  – Ask local Radiologist to liaise with NUH Radiology Department to access required protocol for best view of temporal bone
  – If imaging has already been undertaken locally, our Consultant Radiologist will also review and report on scans
What to do before referral: expectations

- You can touch on expectations prior to referral
- ‘For consideration’ for CI rather than ‘for’ CI
- Outcomes vary and factors include
  - Additional difficulties
    - Not always apparent in young babies/children
  - Age
    - Younger children are more likely to develop functional spoken language but no guarantees
    - Teenagers with poor hearing history can find it very difficult to adjust to new stimulation, outcomes can be limited depending on hearing/language history
    - Congenitally deaf adults can have positive outcomes
  - Family support
    - Proactive and engaged caregivers can impact positively on outcome
    - Deprivation is linked to poorer outcomes
The CI assessment time may be shorter if...

- Audiometric tests have gone up to >90dBHL at 2 and 4 kHz and are reliable and consistent

- No middle ear congestion at test intervals

- Hearing aids optimised and consistently used
ABR testing

• Frequently undertaken in babies & young children to validate behavioural responses

• Interpret with caution in CP and ANSD

• When undertaking locally
  – Test >90dBeHL at 2 and 4kHz if possible
  – Always report middle ear impedance results
  – Avoid undertaking in theatre after grommet insertion
    • Suction can result in TTS
How to refer

• Two methods:
  – write letter
  – complete our referral form

• We will send an electronic copy of our ‘Tips for your cochlear implant referrals’ leaflet to you following this talk, or email us at naip@nuh.nhs.uk
Minimum information we need

• Appropriate medical history
  – Conductive overlay managed if possible

• Unaided hearing test results
  – Including 2 and 4kHz if possible
  – Test >90dBHL if possible
  – Middle ear impedance results for all test occasions wherever possible

• Evidence of hearing aid trial
  – Optimised if possible
  – Reason if not undertaken (eg recent meningitis)
When we receive a referral

• We will request additional information
  – Please respond as a matter of priority as RTT clock ticking!

• We will offer an initial appointment within 3 weeks (often much sooner)
  – Always audiology
  – Frequently SLT on same occasion if appropriate

• We will provisionally list for routine assessment appointments
  – ABR
  – TOD
  – MRI
Generic paediatric assessment

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F/U Audiology
  F/U Audiology
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MDA
  Surgery
Criteria for Cochlear Implantation

- Unaided thresholds
- Limited benefit hearing aids
- <50% BKB sentence test (adults)

Consider
- Functional hearing
- Duration of deafness
- Communication mode
- Expectations
Other considerations

• Asymmetry
  – Close to borderline
    • Look for overall functional profound deafness
  – SSD
    • Not routinely funded
    • Current multi-centre trial

• Severely sloping losses
  – Combined CI/HA (EAS)
  – Limitations to hearing preservation
  – Risk of progression of underlying HL
  – Adults rarely qualify due to NICE BKB criterion
Asymmetry close to borderline

SSD
Severely sloping hearing loss
Children with detection levels which meet NICE guidance

- If detection levels meet NICE guidance
- AND these match their behavioural responses in clinic and functional responses in everyday life

Possible Outcomes
- Counselling re expectations - move forward to CI
- Family not ready to proceed - monitoring
- Agreement to discharge [with re-referral as an option]
Children with detection levels outside NICE guidance

- If children present with detection levels outside NICE guidance
- AND have inconsistent or poor functional responses in everyday life.

Actions
- Collection of further evidence to establish consistency of responses to sound, benefit from hearing aids, rate of progress in relation to that individual’s overall functioning
- If ANSD may proceed to CI
- If other, may submit Individual Funding Request if appropriate
Additional difficulties likely to affect progress

- Cognitive difficulties
- Vocal motor coordination difficulties
- Behaviour difficulties
- Social Interaction difficulties
- Co-occurring medical conditions
e.g. epilepsy
Local professionals
Teachers of the Deaf
Medical Physics
Radiology
Audiologists
Psychologist
Speech & Language Therapists
Admin & Finance
Surgeons
Patient

We are here for you
Contact information

• NAIP:
  – naip@nuh.nhs.uk
  – 0115 948 5549

• BCIG website: http://www.bcig.org.uk/
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PTA 4

ABR results

ON YOUR BLUE SHEET
Thank you!