

RNID OFFER

The RNID is offering half price membership of that organisation to NCIUA members who have a cochlear implant. This £10 offer is also open to implant users of our Regional Groups. Application may be made at www.rnid.org.uk/CIoffer. RNID members receive its One in Seven publication six times a year. This magazine is packed with news, information and letters to help the hard of hearing, deafened and deaf people and promote the cause of access and equality.

MEDIC ALERT OFFER

The Medic Alert Foundation is offering a £5 discount off its membership fee of £20 to all cochlear implant users. Quote the code CISG in applying to www.medicalert.org.uk or by phone to 0800 581420. This is a vital life saving service in which, by wearing an Emblem engraved with one's medical condition(s), medications and next of kin details, the wearer can gain peace of mind knowing that in the event of an emergency, the key data is instantly available to ambulance professionals or other carers at hand.

RESEARCH APPEAL

Tanya Lyons, a final year student of psychology, is looking for help on her dissertation which is about deaf people who have synaesthesia. She is looking for people who have these conditions and would be willing to participate in research into synaesthesia and how the mixing of their senses occurs. Synaesthesia is a condition in which people have an addition to their senses in that they can possibly see colours when they hear/read letters/ numbers/days/months/music, taste shapes or are being touched-these are some of the conditions that exist. There are other combinations of senses that occur in synaesthesia and more information can be found at www.syn.sussex.ac.uk, the site of her supervisor Dr Ward. "Synaesthesia is not imagined, but a very real experience that actually occurs, and happens as a normal experience for those who have it. Many people who have synaesthesia do not realise that they have it, as they tend to think that everyone experiences the same as they do! It's also not something that people often talk about due to their thinking that it is a normal experience".

Please contact Tanya Lyons - Email: tl22@sussex.ac.uk

BILATERAL VS UNILATERAL COCHLEAR IMPLANTATION FOR CHILDREN: LISTENING SKILLS & QUALITY OF LIFE

Summary of a Presentation by Rosie Lovett, University of York, at the Summer Meeting on 21 June, 2008

"In collaboration with Prof. Quentin Summerfield, we are conducting two studies to compare unilateral and bilateral cochlear implantation for profoundly deaf children. The aim of the two studies is to compare unilaterally-and bilaterally-implanted children in terms of their listening skills and quality of life.

So, what are the potential benefits of providing bilateral cochlear implants? The first potential benefit of bilateral stimulation is an improved ability to localise the position of a source of sound. This could help children to know where and to look to see who is talking and to be safe outdoors. The second potential benefit is an improved perception of speech in background noise, which could help children listen effectively in the classroom and at home. Together, localisation and speech perception in noise are known as spatial listening.

We are measuring whether these benefits are being shown by children who use bilateral implants, and/or by children who use a unilateral implant and an acoustic hearing aid. The first study compared two groups of children: 28 children who use bilateral implants and 19 children who use unilateral implants. These groups are fairly well matched in that they don't differ significantly in terms of their age, their age at diagnosis of hearing impairment, or their age at first implantation. There is also a group of 50 normally-hearing children.

We are measuring the spatial listening skills of these groups. In addition, we are asking the parents of the

implanted children to fill in questionnaires about their child's quality of life. The quality of life measurement is crucial because it forms part of cost-effectiveness calculations which can be used by policy makers such as NICE.

The first test assessed whether a child could discriminate a sound on the left from one on the right. The normal-hearing group scored an average of 92% correct, the bilateral group 80% correct, and the unilateral group 58% correct. A 50% score is one of chance or guesswork. So what's the take-home message from this test? Whilst bilaterally-implanted children, on average, performed significantly better than unilaterally-implanted children, there was a large spread of scores. Also, neither group of implanted children performed as well as children with normal hearing.

The second test assessed whether children could track a moving source of sound. The normal-hearing group scored an average of 95% correct, the bilateral group 58% correct, and the unilateral group 24% correct. On average the bilaterally-implanted children performed significantly better than the unilaterally-implanted children. Again there was a



BILATERAL VS UNILATERAL COCHLEAR IMPLANTATION FOR CHILDREN: LISTENING SKILLS & QUALITY OF LIFE cont'd

spread of individual scores. Thus, bilateral implants do not guarantee good performance.

The third test measured speech perception in noise. We measured the maximum amount of noise that the child could tolerate, whilst still understanding the speech.

Normal-hearing children performed better with noise from the side than with noise from the front, an effect known as spatial release from masking. Both groups of implanted children showed spatial release from masking when noise was shifted to the side of the child's second device. This is because the child's head shields their first or only implant from some of the noise. Bilaterally-implanted children also showed spatial release from masking when noise was shifted to the side of their first device. Unilaterally-implanted children did not. We conclude that the bilaterally-implanted group should be able to perform better in a range of noisy situations than the unilaterally-implanted group.

The conclusions from the listening tests are shown in Figure 1.

Listening skills summary

- On average, bilaterally implanted children perform better than unilaterally implanted children on tests of:
 - Left-right discrimination
 - Movement tracking
 - Spatial release from masking
- Overlap between groups – no guarantee of good performance

Figure 1

On questionnaires, the parents rated their child's quality of life using the Health Utilities Index and visual analogue scales. There was no statistically significant difference between parental ratings of the quality of life of bilaterally-and unilaterally-implanted children.

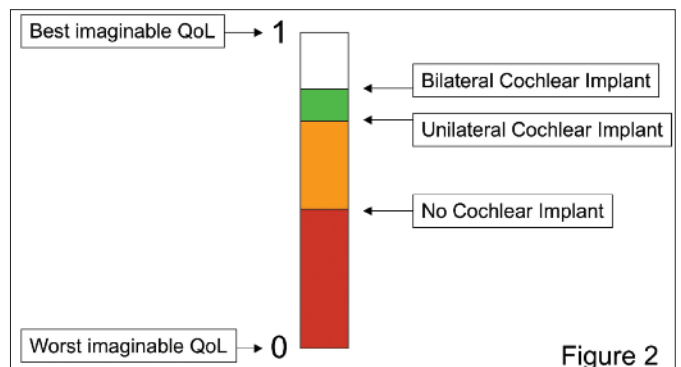
To summarise, the listening data reveal a benefit of bilateral implantation in terms of listening skills. However, according to the parents of these children, those listening skills don't or haven't yet translated into improved quality of life.

Why is there this apparent mismatch? There are two possible reasons. The first is that it takes longer for higher-order benefits to emerge, so it might be that we will see improvements in quality of life further down the line. The second possibility is that it is difficult for parents to rate the quality of life of their own children. This could be because they don't know other implanted children with whom to compare their child. Another possible reason is that

there is a very natural and proper inclination for parents to try and maximise the quality of life of their own child. Therefore, they provide rather high ratings. So in that sense, maybe it is not fair to ask parents to make this judgement.

In the second study, we asked people who are not the parents of implanted children to make judgments about the quality of life of bilaterally-and unilaterally-implanted children. This study was conducted by Georgina Batten and Hannah Bellenger. The study posed 4 descriptions of a hypothetical profoundly-deaf child. In the first description the child does not use a cochlear implant; in the second the child benefits from a single cochlear implant; in the third the child benefits from an implant and a contralateral acoustic hearing aid; and in the fourth the child benefits from bilateral cochlear implants. We asked our informants to rate the quality of life of the child in these four scenarios.

The results show that, on a quality of life scale from 0 to 1, the difference between bilateral implants and the next best alternative of an implant and a hearing aid is 0.06 (Figure 2). NICE have published estimates of the cost of bilateral implantation for children. If you use those estimates and 0.06 as the incremental gain in quality of life, then bilateral implantation for children emerges as a cost-effective health-care intervention.



So, what have the two studies shown? In our sample, the bilaterally-implanted children have, on average, better spatial listening skills than the unilaterally-implanted children. Parental questionnaires do not reveal a quality of life benefit of bilateral implantation, but if you contact other groups, then we do see a benefit in quality of life resulting from bilateral implantation.

I wish to thank Deafness UK and Advanced Bionics who sponsored the research. I would also like to thank Tricia Kemp and the Cochlear Implanted Children Support Group (CICS), the NHS cochlear implant programmes who contributed, and all the parents and children who took part in the studies."