

14TH SYMPOSIUM ON COCHLEAR IMPLANTS IN CHILDREN, DECEMBER 2014, NASHVILLE, USA

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The 14th Symposium on Cochlear Implants in Children was held in Nashville, USA, on 11–13 December 2014. It was organized by the American Cochlear Implant (ACI) Alliance together with Nashville's Vanderbilt University. Nashville is a "music city", summed up by one journalist, Jessica Mozo, with "no matter what visitors choose ... they will be treated to world-class live entertainment", and we found it to be true. However, Nashville is also one of the fastest-growing areas of the US, and its largest industry is actually health care. It is often labeled the "Athens of the South" due to the many colleges and universities in the area, Vanderbilt being one of them. Vanderbilt is consistently ranked in the nation's top 20 universities and in 2014 was rated by U.S. News & World Report as the nation's best in the fields of special education, educational administration, and audiology. The other co-organizer, the ACI Alliance, is a not-for-profit member organization tasked with removing barriers to cochlear implantation by sponsoring research, heightening awareness, and advocating for improved access to cochlear implants for patients of all ages across the US.

A measure of the success of the symposium was the attendance of over 900 scientists and clinicians, mostly from the US. There were only a few representatives from Europe, mostly invited speakers. Poland was represented by a delegation from the Institute of Physiology and Pathology of Hearing in Warsaw (Prof. Henryk Skarzynski, A/Prof. Artur Lorens, Dr Adam Walkowiak, Ms Anita Obrycka, and Dr Piotr Skarzynski).

The 3-day conference was a good opportunity for learning and for sharing research findings between clinicians and scientists. The scientific program covered all aspects of pediatric cochlear implantation: early identification of hearing loss, intervention, childhood language development, implant programming, outcomes, surgical issues, and future research directions.

A key topic was hearing preservation surgery. Prof. Henryk Skarzynski, well known for his expertise in treating partial deafness, presented an invited lecture on his surgical techniques; he also participated in a round table discussion on partial deafness treatment of children.

A group from Vanderbilt University presented the results of a study analyzing the relationships between surgical approach, electrode type, and how the position of the electrode array within the cochlea affects hearing outcomes. The results show that placement of the electrodes completely within scala tympani occurred more commonly for lateral wall electrodes than for perimodiolar ones. The

round window approach was associated with lower rates of electrode placement outside scala tympani than with the cochleostomy approach. Moreover, when electrodes were placed completely within scala tympani, patients had better audiological outcomes compared to patients who had electrodes outside scala tympani. The Vanderbilt results substantiate the validity of the principles for partial deafness treatment proposed by Prof. Skarzynski 15 years ago. His method calls for the atraumatic insertion of the cochlear implant electrodes into the cochlea, a method which has now been published and presented at national and international congresses many times.

The team from the Institute of Physiology and Pathology of Hearing presented papers to the conference on both surgical and audiological aspects of partial deafness treatment. One paper discussed the 'Hearing preservation classification system' developed by Skarzynski et al. [2013]; another demonstrated that among children with partial deafness, the rate of complete hearing preservation is higher than among adults. Prof. Skarzynski has now been invited to contribute his experience to a new Vanderbilt University program aimed at using computer-guided robots for ear surgery; the hope is that some of the surgeon's tasks, such as drilling of the temporal bone, might be successfully done by robots. The Polish team also presented studies on bilateral cochlear implantation in children and on auditory development of children implanted before the age of 2 years. These topics generated much interest from the audience.

In the opening lecture Roberta Golinkoff, University of Delaware, presented results of the Infant Language Project. Its goal is to investigate the mechanisms of language development in babies. Results show that babies 4.5 months old can recognize their names, and at 6 months can remember the words following their name. The name appears to be a key marker that draws the baby's attention. At 6–9 months, babies have learnt the names of many frequently used and attractive objects, e.g. flashing, colorful toys. These studies provide further confirmation of the importance of early implantation in making sound information available and promoting the child's development. As a result, the Institute of Physiology and Pathology of Hearing has implemented a tailored program of providing cochlear implants to children with profound hearing loss before their first birthday.

Prof. Blake Papsin from the University of Toronto shared the results of his study of binaural hearing in young children with bilateral cochlear implants. Results so far show that in cases where the ears were implanted simultaneously, or in short succession, the auditory cortex develops

binaural hearing in a similar way to in normally hearing children. However, in cases of long interimplant delay, the auditory cortex stimulated by the first implant (contralateral to the implant) dominates the second implant and it limits binaural hearing abilities. Recent results from Prof. Papsin confirm that children implanted sequentially with a long delay need much more time to acquire binaural discrimination, although eventually their brains do develop new binaural strategies.

The team from the IPPH also gave five podium presentations on recording acoustic evoked potentials directly from the cochlea, cochlear implant programming, and auditory brainstem implants. Additionally, they presented six posters, one of which, “The Baha Attract Bone Conduction System: Review of patients and evaluation of the first

results in Poland” by Dr Piotr Skarzynski, was awarded second prize in the category ‘Other Implantable Devices’.

Strong attention was given to papers on telemedicine and teleaudiology. Because of its experience, the Institute of Physiology and Pathology of Hearing was invited to join a round table discussion on the topic. The national Network of Teleaudiology implemented by the Institute has been recognized as a model for similar implementations in other countries.

The combination of Nashville’s musical surroundings and the cutting-edge research presented during the plenary sessions created an unforgettable atmosphere for the symposium. The next symposium, the 15th, is planned for 15–17 October 2015 in Washington, DC.