

ASIA PACIFIC SYMPOSIUM ON COCHLEAR IMPLANTS AND RELATED SCIENCES (APSCI 2015)

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The 10th Asia Pacific Symposium on Cochlear Implants and Related Sciences (APSCI 2015) was held in Beijing from 30 April to 3 May 2015. APSCI 2015 was hosted by the General Hospital of the People's Liberation Army, Peking Union Medical College Hospital, Beijing Tongren Hospital, and the China Rehabilitation Research Center for Deaf Children. The Congress venue was the China National Convention Center (CNCC), opened in 2009 and recognized as China's most versatile international conference venue. CNCC is located in Olympic Park right next to the Bird's Nest and the Water Cube, venues for the 2008 Olympic Games.

China is one of the world's biggest trading countries, with rapidly developing research and manufacturing, particularly in the clinical equipment field where international and national brands are now being made. The number of patients who have benefited from cochlear implants (CIs) is also increasing rapidly. Of the more than 300,000 implants done globally to date, 40,000 have been done in China, with children under 6 comprising 75% of the Chinese CI population.

Dr Long Mo from the China Rehabilitation Research Center for Deaf Children reported on recent activity of the Chinese CI program. In 2006, there were 137,000 hearing-impaired children aged 0–6 years old, and 23,000 newborns per year with hearing impairment. Many families, particularly poor rural households, could not afford the cost of a cochlear implant. To solve the problem, in 2009 the Chinese government launched its Cochlear Implant Aid Project, contributing nearly 400 million RMB; in 2012, some 2 billion RMB was allocated to aid more children.

Currently, there are 11,593 hearing-impaired children who have received cochlear implants, including surgery and rehabilitation, for free. There are 61 designated surgical hospitals and 250 designated rehabilitation agencies which form a nationwide network of preoperative assessment, surgery, and postoperative rehabilitation.

The growing experience of Chinese scientists in the field of cochlear implants created the opportunity for the APSCI meeting to take place in China. In recognition of the increasing role of China in the field, scientists from around the world attended the symposium, exchanging ideas on cochlear implant research, development, and clinical application. The scientific program included over 800 presentations and represented a wide spectrum of cochlear implant (CI), auditory brainstem implant (ABI), and middle ear implant (MEI) topics. Electric-acoustic stimulation, bilateral implantation, technical and technological innovations, genetics, hearing screening, electrophysiology, tonal languages, education, and basic research were all covered.

Among the speakers invited to APSCI 2015 were Ingeborg Hochmair and Prof. Blake Wilson who, together with Prof. Graeme Clark, were honored in 2013 with the Lasker-De Bakey Clinical Medical Research Award for development of the cochlear implant. A keynote presentation was also given by Prof. Henryk Skarzynski, who presented his experience in hearing preservation surgery with his 6-step surgical procedure for partial deafness treatment. He also presented results of using this atraumatic procedure in adults and children.

Children were recognized as a group of special interest. Since the first pediatric cochlear implant was performed, progressive improvement has been observed in hearing ability and communication outcome. However, as related by Dr R.J.S Briggs of Melbourne, not all children achieve the expected hearing benefit and develop age-appropriate speech and language. Factors that can contribute to improved cochlear implant outcomes include young age at implantation, bimodal hearing, bilateral implantation, and improvements in speech processor technology. We now also know that for optimal long-term outcomes it is essential that use of a device is not interrupted by problems such as implant failure or chronic otitis media. Such complications can be minimized by careful surgical technique and follow-up in a multidisciplinary clinic. There is also the need to continually monitor auditory development right from the first few months, especially in very young children, a point underlined by a presentation from the Institute of Physiology and Pathology of Hearing in Warsaw.

As implantation criteria broaden, an increasing number of children are receiving bilateral CIs, although many children receive only a unilateral CI when they retain considerable residual hearing in one ear. However, in both cases, more and more children are wearing two devices: a cochlear implant and a hearing aid, or two cochlear implants. According to Leo De Raeve from Belgium, children who use bilateral devices can develop good speech perception skills under complex listening conditions, and these abilities enable at least some of them to develop age-equivalent verbal cognition skills. However, Blake Papsin from Canada found that children implanted bilaterally – simultaneously or in short succession – benefit more than those who had a long interimplant delay. He concluded that this is because the necessary central reorganization following bilateral cochlear implantation depends in large measure on how long the second implanted side has been deprived. Data presented by a team from the Institute of Physiology and Pathology of Hearing confirm that two sequential implants reduce the gap in speech outcomes shown by single implant users.

Much attention was given to hearing preservation and electric-acoustic stimulation. The organizers invited Prof. Henryk Skarzynski to moderate a round table discussion on hearing preservation, and Dr Artur Lorens was invited to participate in a round table discussion on electric-acoustic stimulation. Hearing preservation was also the subject of 6 presentations given by members of the Institute of Physiology and Pathology of Hearing (IPPH). The outcomes presented by the IPPH team showed that hearing preservation is possible using a range of brands and electrode types. A 'Hearing preservation classification system' was used to assess hearing preservation over time in patients implanted in the Institute; the results showed that among children with partial deafness the rate of complete hearing preservation was higher than among adults.

Significantly, there are deaf children who are not suited to receiving a cochlear implant, and yet their auditory and cognitive development is important. Dr Vittorio Colletti from Italy said these children may benefit from an auditory brainstem implant (ABI) and that the complications in those fitted with ABIs are minimal and comparable to children who receive a cochlear implant.

The delegation from IPPH in Warsaw was the sole Polish presence in Beijing. IPPH presented 17 studies ranging over hearing preservation with different electrodes, the prevalence of hearing loss in school-age children, results with different devices (bone conduction implants, Vibrant Soundbridge, CODACS, MET), optimization of parameters for electric stimulation in children, auditory evoked potentials in patients with partial deafness, adaptation of a 'Generic instrument for a health-related quality of life', health effects of various otologic interventions, auditory development of children implanted before 2 years old, and bilateral sequential cochlear implantation in children.

The symposium featured a gala dinner with the theme of caring for hearing-impaired children. Chen Xiaoxia, secretary-general of the China Children and Teenager's Foundation (CCTF) introduced CCTF's special fund which helps those with hearing impairment.

During our stay in Beijing we enjoyed a hearty welcome, the atmosphere of one of the largest cities in the world, and the taste of Chinese culture, food, and tea. This year's symposium has set a high benchmark for the next 11th meeting which will take place in Izmir, Turkey.