

REPORT ON THE 36TH WORLD CONGRESS OF AUDIOLOGY (WCA), 19–22 SEPTEMBER 2024, PARIS, FRANCE

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The World Congress of Audiology 2024 took place from September 19 to 22 in Paris, bringing together world-class experts in hearing impairment, vestibulocochlear disorders, tinnitus, and related fields. This prestigious scientific event provided a valuable platform for knowledge exchange with renowned researchers and the presentation of the latest research and practical advances in diagnosing, treating, and managing hearing disorders. Among the attendees were thousands of specialists from around the world, including representatives from the Institute of Physiology and Pathology of Hearing (IFPS) – Prof. Piotr H. Skarzynski, MD, PhD, Prof. Artur Lorens, PhD, Dr Monika Matusiak, MD, PhD, Dr Anita Obrycka, PhD, Dr Adam Walkowiak PhD, and Emilia Czaplicka.

This year's conference program covered a wide range of topics that are becoming increasingly important in audiology. Key subjects included auditory implants, auditory objective measures, clinical genetics, single-sided deafness, and asymmetric hearing loss. Additionally, issues related to cognitive functioning in individuals with hearing loss were extensively discussed, along with strategies for preventing noise-induced hearing loss.

On the first day of the conference, during a session on Basic and Translational Research, Dr Monika Matusiak presented a lecture titled “Genetic polymorphisms of MMP9 and BDNF as biomarkers of neuroplasticity in prelingual deafness treatment by cochlear implantation.” The study focused on genetic polymorphisms that may influence brain neuroplasticity in children with congenital deafness who are undergoing cochlear implantation. The results suggest that specific genetic markers could serve as predictors of auditory rehabilitation outcomes.

A highlight was the keynote session, Central Markers of Hearing Restoration, by Prof. Karen Gordon. She presented research on brain development in children with cochlear implants and unilateral deafness. Her findings demonstrated that earlier implantation reduces the risk of cortical

reorganization due to auditory deprivation, thereby supporting the development of speech and language.

On the second day, Dr Walkowiak presented his research during the session on objective auditory measurements with a lecture titled “Validation of SPL chirp for ECoChG measurement.” His study focused on the validation of new chirp stimuli used in electrocochleography (ECoChG), and showed that these stimuli could significantly improve the accuracy of diagnosing patients with hearing disorders. They could also allow better monitoring of cochlear implantation.

Dr Anita Obrycka presented her work during a session on pediatric cochlear implants. Her presentation, “Longitudinal observation of benefit after sequential bilateral cochlear implantation in prelingually deaf children”, focused on the long-term benefits of sequential implantation in children with congenital deafness, emphasizing the importance of early intervention and bilateral auditory stimulation for optimal child development.

On the third day, a key event was a panel discussion on surgical considerations for auditory implants, led by Prof. Piotr Skarzynski. His lecture, “Residual hearing and inner ear malformation”, addressed the challenges of cochlear implantation in patients with inner ear malformations. He highlighted the importance of preserving residual hearing during surgery and discussed techniques to minimize the risk of hearing loss.

In a session dedicated to the International Classification of Functioning, Disability, and Health (ICF), Prof. Artur Lorens presented a talk, “The protocol of outcome assessment after cochlear implantation based on the International Classification of Functioning, Disability and Health”, in which he outlined a new approach to evaluating outcomes in cochlear implant patients. The ICF-based protocol offers a comprehensive assessment of patients, taking into account both auditory functions and everyday activities.

On the final day, a session chaired by Adrian Fuente focused on ototoxicity. The discussions covered the prevention and management of ototoxicity caused by various substances, including aminoglycosides and industrial chemicals. Following six presentations, there was a discussion on the role of audiologists in treating and monitoring ototoxicity.

In the Newborn Hearing Screening session, Dr Feri Zhao gave an outstanding presentation on an AI-based diagnostic tool for detecting otitis media with effusion (OME) in children, a tool which gives a sensitivity of over 90%.

Other important topics covered at the conference included the challenges of bone conduction hearing aids for children and the benefits of bimodal stimulation.

The conference also provided an opportunity to showcase the latest audiological technologies. Med-El demonstrated its new Sonnet 3 sound processor, which is waterproof, smaller, and lighter than its predecessors, significantly improving patient comfort. The processor also offers direct sound streaming, making daily life easier for cochlear implant users.

Delegates from the Institute of Physiology and Pathology of Hearing presented 16, including:

1. Effectiveness of bone conduction hearing aids in young children with congenital aural atresia and microtia.
2. Cochlear implantation in children with congenital malformations of the mastoid process.
3. A case report of riboflavin treatment and cochlear implants in a 4-year-old girl with progressive hearing loss and delayed speech development: Brown–Violetto–Van Laere syndrome.
4. Bronchio-oto-renal syndrome: a case report.

5. Symptoms of auditory processing disorders (APD) in children with tinnitus.
6. Normative values for test of central auditory processing disorder in children aged from 6 to 12 years old.
7. Treatment of hearing loss with stapedotomy in a patient with Ehlers–Danlos syndrome.
8. The Bonebridge BCI 602 active transcutaneous bone conduction implant in children: objective and subjective benefits.
9. Stapedotomy in congenital stapes ankylosis with mobile footplate.
10. Results of surgical treatment of unilateral and bilateral otosclerosis in children.
11. Effectiveness of surgical approach of insertion ventilation tubes (tympanostomy) and adenoidectomy in comparison with non-surgical approach (watchful waiting approach) in children at the age between 1–6.
12. Multifrequency ECoChG intraoperative monitoring during cochlear implantation: surgical considerations.
13. Perception of social support by adults scheduled for cochlear implantation.
14. The relationship between the electrically evoked stapedius reflex threshold and stimulus burst duration in pediatric cochlear implant users: preliminary data.
15. Binaural benefit of cochlear implant in children with single side deafness.
16. Can an unaided localization ability be a predictor of CI squelch benefit in patients with residual hearing in the implanted ear?

The event concluded with a gala event at Paris's oldest cabaret, Paradis Latin, built by Gustave Eiffel in 1889. Participants enjoyed the spectacular L'Oiseau Paradis show, featuring dancers, actors, singers, and acrobats. This event was a successful and inspiring conclusion to the conference, which showcased the latest scientific advancements in otolaryngology and audiology.