

11TH EUROPEAN FEDERATION OF AUDIOLOGICAL SOCIETIES CONFERENCE

Katarzyna Ciesla^{1,2}, Kinga Wolujewicz^{1,2}

¹ Institute of Physiology and Pathology of Hearing, Warsaw, Poland

² World Hearing Center, Warsaw/Kajetany, Poland

Corresponding author: Katarzyna Ciesla, World Hearing Center, Mokra 1 Str., Kajetany, 05-830 Nadarzyn, Poland, e-mail: k.ciesla@ifps.org.pl



The 11th European Federation of Audiology Societies conference (EFAS) was held on 19–22 June 2013 in Budapest, Hungary, following the previous symposium in 2011 which was organised by the Institute of Physiology and Pathology of Hearing (IPPH) in Warsaw, Poland. More than 700 specialists from about 25 countries attended EFAS 2013, including 10 from IPPH (see below). There were hundreds of lectures, numerous workshops, and satellite meetings, including the parallel 50th National Conference of the Audiology Sections of the Hungarian Society of Oto-Rhino-Laryngology, Head and Neck Surgery. Professor Jozsef Geza Kiss from the University of Sheged was the President of EFAS 2013. The main topics at EFAS 2013 were the following.

Hearing screening programs in Europe

Professor Henryk Skarzynski, head of IPPH, was the initiator and the chairman of the hearing screening session. He presented extensive results from a Polish newborn screening program carried out by IPPH which combines auditory brainstem potentials and otoacoustic emissions. The reliability and complementarity of these two measures were discussed among specialists including Prof. F. Grandori from Rome, Prof. J. Wouters from Leuven, and Prof. K. Stephan from Innsbruck. Professor Skarzynski also shared IPPH's unique experience in the screening of hearing in Polish school-age children.

Long-term benefits from cochlear implantation

This session focussed on cochlear implant (CI) outcomes in a number of different European populations. IPPH was represented by Dr Monika Matusiak. She highlighted the growing demand for CI treatment in Poland, as well as the benefits from implantation in prelingual deafness (congenital or acquired before the age of 7 years). However, as was pointed out by Professor Kiss, performance in prelingual and post-lingual hearing patients should be studied separately, taking into account the different etiologies and the different stimulation qualities provided by a cochlear implant in both groups.

Other scientists, including Professor Kobosko from IPPH, emphasised the psychological and social aspects of deafness. These involve decreased self-esteem, family pressure, limited

patient mobility, and low awareness by society. As Professor Rainer Beck from Freiburg suggested, psycho-social problems can significantly lower the outcomes of cochlear implantation. Studies have shown that, because children with hearing damage often receive special education (instead of its common counterpart), this can affect social interaction and activity in patients (Gerald O'Donoghue and Tracey Twomey, UK; Anneke Vermeulen, Nijmegen), an often neglected fact.

During special rehabilitation panels, various language-specific adaptations of post-cochlear implantation speech tests were discussed. In Polish, the Adaptive Auditory Speech Test, the Matrix Sentence Test, and the Digit Triplet Test are available. A. Piotrowska from IPPH was the chair of a session dedicated to assessing tests for CI outcomes that are language independent.

Partial deafness treatment

A. Lorens from IPPH, together with Prof. Anke Lesinski-Shedat, held a session focused on various systems of acoustic and electro-acoustic stimulation of the auditory system. The extent of hearing preservation after cochlear implantation was discussed, and how it depends on insertion depth and electrode type. Several specialists, including Prof. Thomas Lenarz from Hannover and Prof. P. van de Heyning from Antwerp, pointed out the disparity between the natural tonotopic organisation of the cochlea and the resolution of the stimulation channel (especially the case with partial electrode insertion). It was also emphasised that, as several studies have shown, the slight deterioration in tonal audiometry measures after cochlear implantation are due to natural hearing loss etiology and natural progression, and are not due to the surgery itself.

Central auditory processing

Non-invasive neuroimaging techniques are becoming increasingly more common in auditory studies. Electrophysiological measures, such as auditory brainstem responses, electroencephalography, and cortical evoked potentials are employed to try and predict outcomes of cochlear (or any other) implantation. Specific neural responses can also be used to assess the outcomes of auditory training. Nevertheless, the reproducibility of electrophysiological measurements remains questionable. At EFAS 2013, a panel session focused on electrophysiology of the auditory pathway was chaired by P. Skarzynski from IPPH.

There were only a few presentations on neuroimaging, such as those involving (functional) magnetic resonance

imaging (fMRI). Nevertheless, extensive auditory plasticity was suggested in, for example, unilateral deafness. Unilateral acoustic stimulation in these patients evokes bilateral responses in the brain, whereas in normal hearing the engagement is lateralised to the contralateral hemisphere. In unilateral cochlear implantation, on the other hand, increased brain activation was found. Auditory neuroimaging seems the hope of tomorrow.

Other topics

Other scientific topics at EFAS 2013 covered differential diagnostic work-up in auditory neuropathy, etiology and treatment of tinnitus, auditory hypersensitivity, central auditory processing disorder (CAPD), and genetics. Moreover,

commercial companies presented new products, including the Nucleus 6 cochlear implant by Cochlear Ltd and the Neptun (waterproof speech processor) offered by Advanced Bionics.

Scientific activity of the Institute of Physiology and Pathology of Hearing

IPPH specialists were invited to many scientific panels at EFAS 2013. This reflects the extensive experience and significant achievements of the institute and its staff, as well as the high intrinsic value of the results presented. Professor Henryk Skarzynski was, furthermore, chosen as a member of the EFAS Scientific Committee. The table below lists the particular scientific activities of IPPH presented at the conference.

Scientific activity	IPPH
Organization and moderation of the session	<p>Prof. Skarzynski, MD, PhD – European school children hearing screening</p> <p>A. Lorens, PhD – Combined acoustic and electric hearing</p> <p>P.H. Skarzynski, MD, PhD – Auditory electrophysiology</p> <p>A. Piotrowska, MD, PhD – Audiological rehabilitation. Speech tests independent of language</p>
Invited lectures	<p>A. Piotrowska, MD, PhD – European school children hearing screening: Hearing screening in school-age children in Poland – past, present, and future</p> <p>M. Matusiak, MD, PhD – Rehabilitation for children and adults after cochlear implantation – long term follow-up programs in Europe. Polish experience</p>
Oral presentation of own studies (15 min)	<p>A. Lorens, PhD – Application of Nucleus SRA electrode (CI422) in subjects with various levels of residual low-frequency hearing; Validation of the Auditory Adaptive Speech Test in the group of patients with Partial Deafness; Frequency and place overlap in electric and acoustic stimulation after Partial Deafness Treatment</p> <p>W.W. Jedrzejczak, PhD – Chirp-evoked otoacoustic emissions in adults and children; 0.5 kHz tone burst-evoked otoacoustic emissions in school-children; Linear and nonlinear click-evoked otoacoustic emissions and removal of a short-latency stimulus artefact</p> <p>P.H. Skarzynski, MD, PhD – Nationwide network of teleaudiology in postoperative care over implanted patients; 15 years of experience with hearing preservation and over a decade of achievements with Partial Deafness Treatment; Assessment of the effectiveness of algorithms applied in the Vivosonic integrity device for rejection of muscle artefacts in ABR recordings</p> <p>M. Matusiak, PhD – Assessment of hearing preservation in relation to cochlea size in substantial low-frequency hearing cochlear implantation; Insertion depth angle in relation to hearing preservation in partial deafness cochlear implantation</p> <p>A. Pollak, PhD – MTHFR 677T as an important determinant of a degree of hearing loss among Polish males with postlingual sensorineural hearing impairment</p> <p>A. Wasowski, PhD, Eng. – Expert telefitting mode with the help of support specialists for cochlear implant recipients</p> <p>K. Ciesla, MSc – Electrophysiological resting-state activity in comorbid dyslexia and Central Auditory Processing Disorders</p>
Oral presentation of own studies (4 min)	<p>J. Kobosko, PhD – Coping strategies, self-esteem, symptoms of psychopathology, and cochlear implant satisfaction in postlingually deaf adults</p> <p>A. Piotrowska, MD, PhD – Council conclusions on early detection and treatment of communication disorders in children, including the use of e-Health tools and innovative solutions</p> <p>L. Sliwa, PhD, Eng. – Evaluation of repeatability of transiently-evoked otoacoustic emissions (TEOAE) in young subjects; Assessment of intra- and intersubjective variability of wave V amplitude in stacked-ABR measurement</p> <p>K. Ciesla, MSc – Brain correlates of sound frequency discrimination – a simultaneous ERP-fMRI study; Application of high-resolution fMRI for primary auditory cortex mapping</p>
Co-authorship	<p>Prof. W.J. Sulkowski – Hearing and leisure-sound exposure in school-age children</p> <p>V. Koci, PhD – Music perception in patients after Partial Deafness Treatment</p> <p>U. Lechowicz, PhD – Novel N714H mutation in WFS1 identified by exome sequencing and linkage analysis as a cause of autosomal dominant hearing loss</p>

Scientific activity of other Polish centres:

Scientific activity	Institute of Physiology and Pathology of Hearing	Others
Scientific Committee	Prof. H. Skarzynski Prof. W. Sulkowski	Prof. A. Sekula
Session Moderator	Prof. H. Skarzynski A. Lorens, PhD	
Invited talks	A. Piotrowska, MD, PhD M. Matusiak, PhD	
Oral presentation	A. Piotrowska, PhD (3) A. Lorens, PhD (2) W.W. Jedrzejczak, PhD (3) P.H. Skarzynski, MD,PhD (3) M. Matusiak, PhD (2) A. Pollak, PhD (2) A. Wasowski, PhD (1) K. Ciesla, MSc (1)	B. Spiewak (2) D. Buchman (1) E. Ozimek (1)
Poster presentation (oral)	Prof. J. Kobosko (1) A. Piotrowska, MD,PhD (1) L. Sliwa, PhD (2) P.H. Skarzynski, MD,PhD (1) Prof. H. Skarzynski (1) Prof. W. Sulkowski (1) A. Lorens, PhD (1) K. Ciesla, MSc (2)	Prof. A. Sekula (1) Prof. H. Czerniejewska (1)