Editorial

The Third Symposium with the topic ‘Asymmetric Hearing Loss’, which was sponsored by Cochlear, took place in Toulouse under the guidance of Prof. Bernard Fraysse and Dr. Mathieu Marx on November 14–15, 2014. Earlier symposia in Interlaken (Switzerland) in 2011 and Berlin (Germany) in 2012 were mainly concerned with the theoretical and ethical questions related to implantation in patients with asymmetrical hearing loss (AHL), including single-sided deafness (SSD), as well as experiences and clinical issues gained from previous cases. Attention was focused on outcome and evaluation protocols for adult patients; however, the treatment options for children with AHL were also briefly addressed. Since then, the number of implanted AHL patients displaying excellent hearing outcomes has risen considerably on a worldwide scale providing the opportunity to review long-term data and confirm earlier findings first discussed in 2011. The expanded study results presented by seven research teams are included in this supplement.

At an international scientific meeting, economic and regulatory aspects generally play a rather subordinate role in the discussions since these issues tend to be very specific and depend on the health care system of the many different countries represented. Nevertheless, these aspects are highly relevant and should exist as an integral part of deliberations; they are particularly relevant to decisions by health service providers at local and national levels regarding the introduction of new indications and treatments. This is especially true for the treatment with cochlear implants (CI) for SSD across all age groups that, at first glance, may be seen as a relatively expensive treatment, thus calling for adequate evidence of both short- and long-term benefits using age-appropriate measures that reflect not only the impact on daily life for the individual but also the burden on society.

During the discussions, the fundamental question of reimbursement, allowing greater access for SSD individuals, was considered from the perspective of pooling data to provide a stronger evidence-based rationale, and the domains to include in assessment strategies. As overlap exists in the requirements for evidence-based decisions for approvals for new devices and new indications by US and European regulatory bodies, international scientific collaboration to standardize evaluation methods will be of benefit to permit and facilitate review of the available collective data.

A good example of such a collaboration and its impact is already in place with the review of borderline cases that display extreme performance outcomes: i.e. very good or poor performers. The critical analysis of combined clinical and research experience has not only raised additional questions for examination but has also led to further developments in evolving candidacy criteria and the accompanying evaluation methods to best determine their application. Specifically, issues concerning the duration of deafness for both adults and children, tests that demonstrate changes over time for SSD implantees, and recommendations for differentiating clear-cut and borderline candidacy are taking form.

More recently, the question of providing a CI for SSD children has gradually gained more attention, as well as the question of expanding the indication criteria to patients with specific causes of deafness. In cases of Ménière’s disease associated with attacks of therapy-resistant vertigo, a labyrinthectomy coupled with simultaneous CI surgery can be considered as a treatment option for patients with profound hearing loss, and recommendations for including tests of vestibular function have been put forward. Similarly, for patients undergoing therapy for a vestibular schwannoma, in the event that an intact auditory nerve can be preserved, CI can be considered a valid treatment.

With respect to children with SSD, a high proportion presents with congenital or acquired deafness in the affected ear only. While preliminary diagnostic and therapeutic results are now available for preschool and primary school-aged children, varying outcomes are observed and, as such, no clear picture of the prognosis of CI-treated patients is currently available. The treatment outcomes for the CI-treated SSD adults surpassed expectations, whereas in a relatively smaller group of implanted SSD children negative outcomes were higher than anticipated from adult experience. It is suggested that outcomes in children may depend more strongly on the duration of deafness, particularly in those with congenital unilateral deafness, who should benefit from CI surgery before cortical remodeling takes place. The disparity or diversity in the assessment methodologies employed point to the absolute need for ongoing collective data exchange and discussions of clinical and research experience that can, in turn, support the development of more refined diagnostic evaluation batteries, help to identify prognostic factors, and further account for ethical questions that lie at the core of the debate to expand the criteria for children with SSD. In parallel, it highlights the need to consider routine evaluation of other treatment alternatives, such as conventional CROS/BiCROS or bone-anchored hearing devices, and their degree of hearing benefit as part of the selection process for a CI when possible. Such concerns were discussed and summarized during the round table session, which are described in several papers of this supplement.

The observation that tinnitus may be suppressed by electrical stimulation in the CI active state in most bilaterally deaf patients ultimately led to considerations to offer CI treatment for the restoration of hearing in SSD patients with concomitant disabling tinnitus; however, hearing loss remains the primary indication for CI therapy. Furthermore, the finding that bimodal stimulation therapy allowed for rehabilitation of directional hearing ability for implanted patients presenting with bilateral, yet asymmetrical hearing loss added to the decision to provide SSD patients with a CI. Evidence indicates that it is possible to integrate both acoustic and electrical signals to improve hearing ability.

At present, treatment of patients with a commercially available CI has a history in clinical medicine of nearly 4 decades. Certainly, as an everyday reality, it has become routine; nonetheless, clinical application of CI treatment is performed hand in hand with an ongoing, worldwide networking and scientific collaboration. This supplement, based on a sound body of evidence, addresses considerations and issues associated with the selection, implantation and evaluation of individuals with AHL. We wish to thank the organizers, presenters and their colleagues, and the attendees for their contributions.

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