

assessed by using the COSMIN-criteria: a checklist providing a standard for design requirements and preferred statistical analyses.

Results: A large number of questionnaires was found. The following outcome variables will be presented in our overview: the number of items, response scales, subscales, cut-off/end points, reliability and validity. If possible, the questionnaires will be ranked according to usefulness and actual use in literature.

Conclusion: A large number of otologic questionnaires is available in literature. The presented overview will highlight the best available questionnaires in the follow-up of otologic patients.

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Outcome measure in Cholesteatoma Surgery (R846)

ID: 846.2

The COMQ-12 and the COMBI questionnaires for the assessment of cholesteatoma surgery outcome

Presenting Author: **John Phillips**
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Learning Objectives: 1. To appreciate the significance of attaining HRQoL data from patients to assess outcome. 2. To understand the development and application of the COMQ-12. 3. To understand the development and application of the COMBI. 4. To appreciate how the use of the COMQ-12 and COMBI represent an opportunity to compare HRQoL worldwide.

Health related quality of life (HRQoL) measurements reflect the overall burden of disease from the perspective of the patient rather than the clinician. This makes the acquisition of this kind of data particularly pertinent in otology, where single clinical, radiological, and audiological findings may inter-relate poorly, and therefore poorly predict HRQoL. The use of HRQoL measures has been shown to aid both the patient's prioritisation of their symptoms and the management of their individual expectations.

The COMQ-12 and COMBI have been developed to assess the patient-reported health-related quality of life (HRQoL) due to chronic otitis media. Both of these questionnaires have been developed to be completed by the patient before physician assessment. Both questionnaires are composed of 12 items that cover a broad range of experiences pertinent to patients with chronic otitis media. The COMQ-12 and COMBI have been developed from the same core item pool, and are complimentary tools that have been shown to provide an accurate assessment of disease severity.

This presentation will take the opportunity to detail the process of questionnaire development and psychometric analysis. Details regarding the translation of these questionnaires into foreign languages and their relevance for assessing outcome in clinical practice will also be provided.

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Outcome measure in Cholesteatoma Surgery (R846)

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Temporary removal of the posterior bony canal wall in cholesteatoma surgery

Presenting Author: **Vincent Van Rompaey**

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Learning Objectives: To describe an alternative technique to enable cholesteatoma removal. To report on the outcome in patients that underwent this type of surgery.

We describe the surgical technique of temporary removal of the posterior auditory canal wall with reconstruction and report the outcome of using this technique as a treatment method for cholesteatoma in a case series. In 32 cases of cholesteatoma surgery a technique of temporary removal of the posterior bony wall was applied. During primary surgery the posterior auditory canal wall was removed using an oscillating saw. For the purpose of reconstruction, the canal wall was repositioned and fixed using two titanium microplates (n = 26). In case the canal wall could not be reconstructed with osteosynthesis, either glass-ionomeric cement (BioCem) was used for fixation (n = 4) or fibrin glue (Tissucol) (n = 2) to support the posterior wall. The outcome includes the healing process in the first post-operative month, the absence of residual or recurrent disease and the successful reconstruction of the posterior auditory canal wall as evaluated during second-look surgery. When microplates were used, we saw healing problems of the canal skin in about 4 % of patients. Recurrent cholesteatoma was found in 4 cases (14 %), residual cholesteatoma in 8 ears (25 %). In the osteosynthesis group, successful reconstruction was achieved in 25 patients (96 %). In 3 out of 4 patients of the glass-ionomeric cement group (75 %) excessive granulation tissue developed with extensive bony lysis. Temporary removal of the posterior auditory canal wall offers potential for the control of cholesteatoma. Our first results suggest that osteosynthesis allows for a good anatomical and functional reconstruction.

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Bonebridge and Soundbridge – practical approaches (V847)

ID: 847.1

Bonebridge: Surgical Planning, Outcomes, and Innovations

Presenting Author: **Peter Grasso**

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MED-EL

Learning Objectives: The objective of this presentation is to review the key features of the radiological and surgical planning software for the Bonebridge.

Percutaneous implantable Bone Conduction Hearing Aids have been used for decades to treat certain types of hearing losses. These devices can offer improved sound quality, by stimulating the bone directly. However this class of device has a major drawback: a chronic open wound, as vibratory energy is delivered to the skull through an osseointegrated screw directly attached to an external audio processor. To overcome issues related to wound management and infections, two new classes of bone conduction hearing aids have been recently developed: passive, and active, transcutaneous implants. The passive devices transfer mechanical energy through intact skin to the bone. The BONEBRIDGE system represents the first active bone conduction device that addresses the wound issues of percutaneous devices. The system is implanted in the Temporal Bone or in the retrosigmoidal area.

In order to evaluate the surgical risk of exposure /compression of important structures such as the dura and the sigmoid sinus, the BONEBRIDGE can be “virtually implanted” prior to the actual surgery using dedicated software called BB Fast View. The BB Fast View software utilises conventional CT scans (DICOM) and can assist radiological and surgical planning. Important information about the placement of the BONEBRIDGE can be forwarded to the radiologist and surgeon for evaluation. The software has been proven to be a useful tool as a preliminary assessment of the feasibility of BONEBRIDGE implantation.

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ID: 847.2

Coupling of Active Middle Ear Implants to the Ossicles and the Cochlea

Presenting Author: **Joachim Mueller**

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Learning Objectives: In general, the audiological results achieved after tympanoplasty showed postoperatively for 80 % of the patients an improved or equal hearing compared to preoperatively. Thus 20% of the patients are not satisfied with their hearing. Active middle ear implants offer new possibilities for the improvement of hearing. In principle, active middle ear implants can directly drive any vibratory structure of the middle ear. The lecture uses video sequences to describe and discusses the coupling techniques of active devices to the ossicular chain (Incus, Stapes), to partial or total prosthesis, directly to the round or oval window. For some attachments, special elements had been developed. Also accompanying procedures, such as tympanic membrane reconstruction with cartilage are discussed. In cases of a atelectatic middle ear the alternative application of the device directly to the round oval or round window is advantageous. Active middle ear implants enrich the field of reconstructive middle ear surgery and enable a detailed discussion on different ways of reconstruction.

Since the basic principles of tympanoplasty had been developed in the early 50ties, many otologists made additional contributions to our current knowledge of tympanoplasty procedures.

In general, the audiological results achieved after tympanoplasty showed postoperatively for 80 % of the patients

an improved or equal hearing compared to preoperatively. Thus 20% of the patients are not satisfied with their hearing.

Active middle ear implants offer new possibilities for the improvement of hearing.

In principle, active middle ear implants can directly drive any vibratory structure of the middle ear. The lecture describes and discusses, based on short videosequences, the coupling techniques to the ossicular chain (Incus, Stapes), to a partial or total prosthesis, or directly to the cochlea, via the round or oval window. For some couplings methods, special elements had been developed.

Also accompanying procedures, such as tympanic membrane reconstruction with cartilage are discussed.

In cases of a atelectatic middle ear some of the above mentioned alternative applications of the active device directly to the round oval or round window is advantageous.

Active middle ear implants enrich the field of reconstructive middle ear surgery and enable a detailed discussion on different ways of reconstruction.

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ID: IP137

Quality of information available via the internet for patients with otological conditions

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Learning Objectives:

Objective: Evaluate the type, content and quality of information available via the internet for patients with common otological conditions.

Methods: The Google search engine was used to generate responses for the following search terms: glue ear, otitis media, otosclerosis, Meniere's disease, cholesteatoma and ear perforation. The first 10 websites for each search term were selected for analysis. Websites were evaluated with the validated DISCERN instrument, the LIDA tool, the Flesch Readability Formula, the SMOG (Simple Measure Of Gobbledygook) readability score and against the JAMA criteria. Comparisons were made with a similar study assessing quality of information in non-otological conditions.

Results: Mean SMOG score was 12.19 years of education (range 6.2–22.8). The HON symbol appeared on 15 of 49 websites (30.61%). Pearson's r was used to identify interactions between variables and demonstrated a significant correlation between LIDA score and Google ranking ($R^2 = -0.1195$, $p = 0.002$); between university/hospital affiliation and JAMA score ($R^2 = -1.7889$, $p = 0.0182$) and commercial affiliation and JAMA score ($R^2 = 1.0561$;