wall down (CWD) or canal wall up (CWU) technique. Despite a lot of research in the past decades, the question which technique is best is still unanswered.

The aim of this study is to compare the proportion of disease recurrences in patients with acquired cholesteatoma, 5 years after Canal Wall Up or Canal Wall Down mastoidectomy.

Methods: We systematically searched Pubmed, CINAHL, Embase and PiCarta from inception up to January 2015 for cohort studies published in English with otoscopicaly confirmed acquired cholesteatoma patients that received either canal wall up, or down mastoidectomy, and in whom disease free status was confirmed with either otoscopy, second look surgery or DWI MRI scan. Risk of bias was critically appraised by 2 different investigators using the Quality in Prognostic Studies (QUIPS) tool. We extracted data on patients and disease status, disease recurrence rates, and diagnostic techniques used for follow-up.

Results: Eight studies on CWD (1092 patients) and CWU (1685 patients) mastoidectomy were included in this review. Risk of bias assessment showed that the decision for CWU or CWD surgical technique was dependent on the extent and location of the pathology in 100% of the studies. The follow up period was insufficient, no distinction was made between residual and recurrent disease, age of the patients was not mentioned or the procedures to detect residuals were not standardized in 50%, 38%, 38% and 100% respectively.

Conclusions: We were unable to compare the disease recurrence rates after the CWU or CWD technique without bias, as the extent and location of the pathology was related to both the choice of surgical approach as well as the outcome. To provide a valid comparison between CWU and CWD, either a randomized clinical trial or standardized prospective registry for cholesteatoma patients is warranted.

doi:10.1017/S0022215116001419

Important clinical research in otology (N615)

ID: 615.1

Electrical auditory brainstem responses during cochlear implantation

Presenting Author: **Karin Lundin**

Karin Lundin[1], Fredrik Stillesjö[2], Helge Rask-Andersen[2]
[1]*University Hospital Uppsala,* [2]*ENT/University Hospital Uppsala*

Objectives: The aim of this study was to investigate whether electrical auditory brainstem responses (eABR) obtained during cochlear implantation (CI) can predict CI outcomes. We also aimed to assess whether eABR can be used to select patients for auditory brainstem implantation (ABI).

Methods: The study was retrospective. The latencies and quality of the eABR waveforms from adult patients implanted with CI in Uppsala from 2011 to 2013 (n = 74) and four children with severe cochlear abnormalities were analyzed. Speech perception was assessed by postoperative monosyllabic word (MS-word) recognition. A score was constructed for each patient based on wave II, III and V patency.

Results: Wave V for the mid- and low-frequency regions on the implant was the most robust. eABR latencies increased towards base stimulation of the cochlea. Significant latency shifts occurred in wave V from the low- to high-frequency regions on the implant ($P^{**} < 0.01$) and from the mid- to high-frequency regions on the implant ($P^{**} < 0.01$). No correlations were found between wave V latency, wave V-III interval, waveform score, and MS-word scores. A negative eABR always predicted a negative outcome. Among the patients with negative outcomes, 75% had eABRs.

Conclusions: Implant electrical auditory brainstem recordings can be used (eABRs wave V) to predict a negative functional outcome. Low-frequency wave V was observed in all patients with successful CI outcomes. Patients for whom eABR waveforms were completely absent had unsuccessful CI outcomes.

doi:10.1017/S0022215116001420

Important clinical research in otology (N615)

ID: 615.2

Cochlear implantation in the elderly

Presenting Author: **Karin Lundin**

Karin Lundin, Andreas Näsvall, Susanne Köbler, Göran Linde, Helge Rask-Andersen
University Hospital Uppsala

Learning Objectives: To analyse complications and outcome of cochlear implant (CI) treatment in seniors receiving CIs during a 10-year period.

Introduction: The elderly population in Sweden is growing, particularly in those over 80 years of age (Statistics Sweden Demographic reports, 2009). This has led to an increasing incidence of age-related hearing loss and it is expected that this group will represent an important cohort to treat with cochlear implants (CIs).

Methods: A total of 28 patients, 79 years or older (mean age 81.6 years), were evaluated and compared with a younger group of 76 patients, 20–60 years old (mean age 48.9 years). A retrospective study of the patients' records was performed. Data on per- and post-operative complications, pre- and post-operative speech perception, estimated cognitive skills, and social situation was extracted. A subjective score was assessed and correlated with post-operative performance.

Results: No severe per- or post-operative surgical complications were noted. Speech perception improved significantly after surgery ($P < 0.001$). The younger age group showed better results post-operatively for monosyllabic words ($P < 0.01$) compared with the older group with no difference seen for bi-syllabic words. In both the groups, there were no significant differences between patients living with or without social support.

Conclusion: CI surgery for patients 79 years or older was well tolerated. Patients benefited greatly from the device with improved hearing. CI should not be denied older individuals who are otherwise in good health. Non-use in the elderly was associated with post-operative vertigo and tinnitus, severe disease and limited social support.

doi:10.1017/S0022215116001432

Important clinical research in otology (N615)

ID: 615.3

Human Cochlear Morphology and how it relates to Cochlear Implantation

Presenting Author: **Karin Strömbäck**

Karin Strömbäck, Elsa Erixon, Helge Rask-Andersen
University Hospital Uppsala

Learning Objectives: The ability to preoperatively estimate the insertion depth in a particular patient may influence the results in hearing preservation CI surgery.

Introduction: Modern cochlear implant (CI) surgery also purposes to preserve and maintain residual hearing and intra-cochlear structures. The rich variations in design and dimensions of the human cochlea may influence surgical trajectories and functional outcome. Here, we present anatomical data and experiences from hearing preservation CI-surgery.

Material and Methods: The sampled cochleae originated from unidentified autopsy materials and collection of inner ear mould created in Uppsala during the 70th. No information regarding gender, age or hearing was present. Data were collected from 73 plastic inner ear moulds. Reference points were constructed from photographic reproductions taken at different angles. Hearing preservation technique was performed in 21 patients and the dimensions of the cochlea were studied pre- and postoperatively.

Results: The length of the first turn represented approximately 53% of the total cochlear length. The width of various turns differed greatly between individuals and the height varied by as much as 1.4 mm, representing one third of the total height. The electrode configurations in each of the 21 cases were shown in insets and its relation to the round window. Hearing was conserved in all patients after one year.

Conclusions: The human cochlea displays wide and individual anatomic variation. These variations can influence the trajectory chosen by the surgeon and also the possibilities to preserve microstructures and residual hearing. Some variations may even explain difficulties experienced by surgeons to reach full insertion, even in normal cochleae.

doi:10.1017/S0022215116001444

Important clinical research in otology (N615)

ID: 615.4

Mastoiditis in Sweden, a large pilot for future studies

Presenting Author: **Frida Enoksson**

Frida Enoksson[1], Ann Hermansson[2]
[1]Helsingborg hospital, [2]Lund university

Learning Objectives: Descriptive studies are needed to define good comparative studies on the most important issues in a clinical disorder. The findings in this large pilot study can direct future prospective studies on how to treat acute mastoiditis in an era with efficient antibiotics and in a possible post-antibiotic era.

Introduction: Since the year 2007, the largest study on acute mastoiditis, so far, has been performed in Sweden. The main reason for performing it was to evaluate how reduced antibiotic treatment of acute otitis media affected its most common complication.

Methods: Most of the published results in the study "Mastoiditis in Sweden" were based on interpretation of medical records. This poses special challenges regarding definition and interpretation of the results and if antibiotic resistance has affected the results.

Results: More than 1300 cases have been included but still the findings are mainly descriptive. The typical patient with acute mastoiditis has been well defined, an otherwise healthy toddler without previous ear problems.

Conclusions: Some patients are difficult to fit into a preformed definition which might lead to an unfortunate exclusion of "odd cases" that should be part of the diversified group of patients suffering from complications of AOM.

doi:10.1017/S0022215116001456

Epidemiology aspects of CSOM (R616)

ID: 616.1

Health check up system for hearing and congenital cholesteatoma

Presenting Author: **Taeko Okuno**

Taeko Okuno[1], Yasutaka Kojima[2], Go Inokuchi[3], Yu Matsumoto[4], Katsuhiro Tsutsumiuchi[4], Yuko Hata[1], Yoko Yamazaki[1]
[1]Mitsui Memorial Hospital, [2]Nishikobe Medical Center, [3]Kobe University, [4]University of Tokyo

Learning Objectives:

Introduction: At 6th Cholesteatoma and ear surgery meeting held at Canne, France in 2000, we had the discussion about the figure of congenital cholesteatoma in Japanese patients and in the patients of other countries. In the nineties most of the children with congenital cholesteatoma belonged to the severe cases. At the initial operation, cholesteatoma extended not only in the tympanic cavity, but to the mastoid in most of the Japanese children.

Recently the figure of the congenital cholesteatoma has changed. Introducing the endoscope and microscope into the ordinary tools of ENT office contributed to make diagnosis of congenital cholesteatoma in early stage. The hearing