

### A0003: Audiological Effects of Occupational Noise Exposure in High-Risk Staff in a Tertiary Care Hospital in South India

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**Aims** To determine the audiological effects of long-term noise exposure in high risk groups of staff working in a tertiary care hospital in South India.

**Materials and Methods** This study was done as part of the newly established occupational health program in the hospital. Boiler section, Artificial Limb Center (ALC), Laundry department, Central Sterile Supply Department (CSSD), and Dietary department were selected for the study based on questionnaires from employees about perception about noise hazards in their areas of work. The questionnaire that rated the noise levels on a scale from 0 to 5, where 0 was no noise to 5 was intolerable, extreme noise. Based on this, sound levels were assessed in these areas during different times of the day. The result of this questionnaire and sound measurement prompted the hospital administration to take several measures. Awareness programs were held in these areas, audiological examination was done, and ear protection devices were given to all employees working in these areas. This study data have been retrieved from chart reviews of staff working in the five high-noise level areas and screened for hearing loss between March 2015 and October 2017.

**Results** The noisiest area in the hospital rated grade 5 was the boiler room with an average of 95 dB noise, followed by the CSSD, laundry, and dietary sections. One hundred and seventeen staff, 80 males and 37 females underwent evaluation by an ENT surgeon. Duration of noise exposure in these workers ranged from < 5 to > 20 years. Out of the 116 staff, who underwent pure tone audiometry, 66 had sensorineural hearing loss in either or both ears. Otoacoustic emissions were done on 73 staff, 23 had absent OAE bilaterally. There was significant association between CSSD workers and noise induced hearing loss as compared with other departments (Chi-square test with *p*-value of 0.044).

**Conclusion** The proportion of staff from high noise areas having documented sensorineural hearing loss was 64%. CSSD workers had a significant higher association of noise-induced hearing loss when compared with other departments. This data emphasize the importance of ongoing hearing conservation programs among health workers.

### A0004: Vertigo Clinic Patients: A 2-Year Clinical Audit Anoop Chandran

**Introduction** Clinical audit “quality improvement process that seeks to improve patient care and outcomes through systematic review of care against explicit criteria and the implementation of change.”

#### Aims and Objectives:

1. **Database** of patient demographics serves as referral base.
2. **Diagnoses** to better focus on investigative tools.

3. **Treatment** benefits to modify our treatment protocols.

4. **Academic** study planning.

**Materials and Methods** Audit of vertigo clinic was conducted at Sri Ramachandra Medical College and Research Institute, Chennai, India. Data comprised 231 patients from Vertigo clinic between November 2015 and October 2017. Clinic conducted a complete and comprehensive evaluation of patients. Various tests conducted as a part of this evaluation were pure tone audiometry (PTA), vestibular evoked myogenic potentials (VEMP), X-ray cervical spine, carotid and vertebral Doppler, and MRI brain. Routine blood investigations, lipid and thyroid profiles are also done as indicated.

#### Results and Conclusion

**Demographics** Sex distribution was female predominant, 140 females and 91 males.

**Diagnosis** Most common diagnosis was benign paroxysmal positional vertigo (BPPV) with 145 patients, systemic causes, such as postural hypotension and cardiogenic etiology, were seen in 36 patients, Meniere's disease and vestibular migraine showed similar incidence with approximately 15 patients each. Less common conditions included vestibular neurolabyrinthitis, cervicogenic, psychogenic, and central and dynamic visual vertigo.

**Treatment** Protocol based, systematic treatment, and referrals were followed for all the patients.

**Academic** Auditing opened the scope for research activity in vestibular migraine, head impulse test and helped with fine tuning of the evaluation proforma and treatment protocols.

### A0005: Functional Endoscopic Middle Ear Surgery: Concept and Application

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**Aim** The functional preservation of healthy mucosa and bone has been emphasized in relation to endoscopic management of sinonasal diseases since many decades. With the advent of endoscopic revisit to the middle ear anatomy and better understanding of the ventilation pathways of middle ear cleft, recent trend emphasis has been seen to be laid upon the maximum preservation of the functioning middle ear cleft structures. The original study conducted was to know the essence of reestablishment of the ventilation pathways for better surgical outcome of tympanomastoid diseases by minimal invasive endoscopic transcanal approach with particular reference to mucosal disease involving middle ear cleft.

**Materials and Methods** The prospective study has been conducted over a period of 9 years from 2009 in the medical colleges of Assam and nongovernment Operative Establishments of Jorhat, Assam. Mandatory HRCT scans of temporal bone and a set sequence of interventions and reconstruction as per disease and defect were part of the protocol-based management by endoscopic transcanal approach.

**Results** Significant improvement in the postoperative quality of life in the majority of such patients, with lowered perioperative morbidity and added advantage of better cosmesis was seen. The extent of unwanted and avoidable drilling of the mastoid cortex could be significantly lowered. Functional results in terms of postoperative hearing was found to be improved with closure of AB gap to the extent of 30 dB in majority of patients.

**Conclusion** Despite the technical demand of therapeutic intervention for delicate middle ear sound conducting mechanism by the transcanal endoscopic approach, it has been seen to stand the test of time as a technique of minimal invasive surgical approach. The functional preservation of the middle ear mucosa and reestablishment of the ventilation pathways are the keys to successful outcome in the management of mucosal disease of the middle ear cleft.

**Clinical Significance** The clinical significance of the original research study is to ascertain the essence of endoscopic minimal access surgical techniques for the management of isolated mucosal diseases of the middle ear cleft and its long-term results.

#### **A0006: Over Expression of Psoriasin in Middle Ear Cholesteatoma Increases Inflammation, Bone Destruction, and Severity of Disease: Ultrastructural and Molecular Findings**

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**Introduction** Cholesteatoma remains a mystery as its trigger is still not known. How insidiously tympanic membrane starts to accumulate keratin and start to invade surrounding structure is still unknown. No treatment of this disease is available to stop progression except surgery.

**Aim** The study was performed to evaluate the role of psoriasin and proinflammatory cytokines in progression of middle ear cholesteatoma.

**Methodology** Study was conducted in AIIMS, New Delhi, after ethical approval. Eighteen (12 cases of cholesteatoma tissue as study group and six cases of PSRP as control taken after tympanomastoidectomy) patients were included in the study after taking written consent. Clinical aggressiveness was evaluated on table under operative microscope by evaluation of erosion of ossicles, invasion of surrounding structures, complications, if any, associated in preoperative period. Cholesteatoma cases were divided into two groups based on severity of the disease (moderate and severe). The cases of PSRP (... please add one line about and extended form of it ...), describe a condition in which a part of the eardrum lies deeper within the ear than its normal position, were taken as control. The middle ear cholesteatoma tissues were processed for histopathological, ultrastructural, and immunohistochemical analyses.

**Results** Hematoxylin and eosin-stained tissue sections showed stratified squamous epithelium, keratinous contents, ghost squamous cells, and inflammatory cells. The psoriasin expression in cholesteatoma tissues was significantly higher as compared with posterior superior retraction pocket (PSRP). A Psoriasin expression increases with the severity of the disease. The proinflammatory cytokines (IL-6 and IL-1 $\beta$ ) were also upregulated along with VEGF and MMP-9 in cholesteatoma cases compared with control and the expression increased with disease severity. TEM images of ultra-thin sections of the tissues showed strips of stratified squamous epithelium layer along with inflammatory and apoptotic cells. A very unique ultrastructural feature of bacterial localization within the membrane pocket was seen, which gave direct evidence of bacterial infection in the middle ear cholesteatoma.

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#### **A0007: Repair of Focal Posterior Canal Wall Defects Using Bony Plate over the Sigmoid Sinus**

Devika Shere

**Aim** To study the effectiveness of repair of focal posterior canal wall defects using bony plate over the sigmoid sinus.

**Materials and Methods** We performed a retrospective review of seven cases operated at our tertiary care center between January 2015 and August 2017 for repair of posterior canal wall defects.

All seven patients had focal defects in posterior canal wall. These defects were repaired by using bony plate harvested from sigmoid plate after an intact canal wall mastoidectomy. The repair was done after a thorough clearance of active pathology in the ear in all of these cases. These cases were followed up for a period of 6 months to 1 year.

**Results** All seven cases had successful repair of the posterior canal wall defect. There was good epithelialization of the external auditory canal and the reconstruction was stable. All of these patients had relief from intermittent otorrhea.

**Conclusion** This technique of repair is simple, repeatable, and provides an effective physiological reconstruction of the posterior canal wall. Bony sigmoid plate is invariably easily available. The plate of bone has a natural curvature of the canal wall. And in terms of tissue quality, the sigmoid bony plate and posterior canal wall plate were similar.

**Clinical Significance** In an intact canal wall (canal wall up procedure) inadvertent defect of canal wall must be repaired to avoid intermittent otorrhea and to prevent retraction pockets formation. This technique of repair fulfills this requirement and is cost-effective with good patient compliance.