

AUDIOLOGICAL AND VESTIBULAR MEDICINE

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TOPICS COVERED IN THIS MODULE

- Scientific basis for Audiological and Vestibular Medicine
- Practical skills in Audiological and Vestibular Medicine
- Specific conditions affecting the hearing and balance systems
- Hearing and Vestibular rehabilitation.

RATIONALE

The disorders of the vestibular system and audiological pathways are fundamental parts of otolaryngology head and neck surgical practice.

KEY COMPETENCIES

The Graduating Trainee will be able to:

- Assess and manage patients with deafness
- Assess and manage patients with vestibular disturbance
- Perform basic audiological investigations
- Interpret audiological and vestibular investigations
- Advise on hearing rehabilitation
- Advise on vestibular rehabilitation

MODULE CONTENT AND OBJECTIVES

There are 4 components of this module:

1. Basic sciences
2. Practical skills
3. Clinical modules
4. Rehabilitation skills

1. Basic Sciences

Audiological Medicine

Explain in detail the:

- Physics of sound
- Measurement of sound
- Anatomy of the auditory system
- Physiological basis for hearing
- Measurement of human hearing including:
 - Voice perception tests
 - Tuning forks

- Audiometry
- Evoked potentials
- Oto-acoustic emissions
- Electrocochleography

Know the theory, application and practical use of:

- ABR
- CERA

Vestibular medicine

Explain in detail:

- the anatomy of the vestibular system
- the physiological basis for balance
- measurement of human balance including
 - ENG
 - Caloric testing
 - Rotational testing
 - Vestibular evoked potentials

2. Practical skills

Audiological medicine

Perform and interpret:

- Tuning fork assessment
- Free field speech assessment
- Clinical masking techniques

Vestibular medicine

Perform and interpret:

- Clinical vestibular assessment including:
 - Demonstration of spontaneous and evoked nystagmus
 - Head impulse testing and clinical assessment of the VOR
 - Clinical tests of gait and balance
 - Hallpike testing
 - particle-repositioning manoeuvres

3. Clinical modules

Specific audiological and vestibular conditions

Audiological Medicine

Define and diagnose:

- Occupational hearing loss
- Ototoxicity
- Presbycusis

- Non-organic hearing loss
- Sudden onset sensorineural hearing loss
- Tinnitus
- Hyperacusis
- Phonophobia
- Congenital hearing loss

Vestibular medicine

Define and diagnose:

- Benign paroxysmal positional vertigo
- Endolymphatic hydrops including Meniere's disease
- Vestibular neuronitis
- Labyrinthitis
- Migrainous vertigo
- Dehiscent semicircular canal
- Tullio's phenomena

4. Rehabilitation Skills

Audiological Medicine

Demonstrate knowledge of audiological rehabilitation using:

- Counselling
- Application of hearing aids including:
 - Behind the ear (BTE)
 - In the ear (ITE)
 - In the canal (ITC)
 - Completely in the canal
 - Open mould type aids
- Bone conduction hearing aids (CIC)
- CROS
- BICROS
- Assistive listening devices
- Bone anchored hearing aids (BAHA)
- Implantable and semi-implantable aids
- Cochlear implants
- Auditory brainstem implants
- Tinnitus masking devices

Vestibular medicine

Discuss in detail:

- Particle-repositioning manoeuvre

- Graded vestibular exercises
- Balance platform rehabilitation
- Habituation exercises

RESOURCES

Basic sciences

- Basic surgical training package
- Standard anatomy texts

Clinical modules

- Hospital Outpatients Departments
- Tutorials

Practical and rehabilitative skills

- Audiology tutorials
- Annual Registrar Conference Skills course
- Participation in obtaining audiograms in hospital Audiology Departments
- Observation at Vestibular laboratories

SUGGESTED READING

- Otolaryngology Head and Neck Surgery, Cummings, Frederickson et al
- Disorders of the Vestibular System, Halmagyi et al
- Audiology, Browning, Katz, Bernard

ASSESSMENT METHODS

Basic Sciences

Assessment of the Basic Sciences unit should be carried out at 18 months after the commencement of Surgical Education and Training in Otolaryngology Head and Neck Surgery. The basis of the assessment will be multiple choice questions.

Clinical modules

This area will be assessed at the Annual Trainee Conference Trial Examinations, as well as the Fellowship Examination including written examination, vivas in surgical pathology and operative surgery. Clinical acumen will be tested in short and medium case scenarios.

Practical Skills

A specified number of audiograms and tympanograms will be required to be performed by the advanced surgical trainee. Attendance at a specified number of occasions at a vestibular laboratory will also be required.

Rehabilitation Skills

This area will be assessed at the Fellowship Examination including written examination and vivas in operative surgery.