

POST - DOCTORAL FELLOWSHIP PROGRAMME IN IMPLANATATION OTOLOGY

DURATION OF THE COURSE : **ONE YEAR**

1. Introduction & Background:

The fellowship course is specifically designed for young ENT Consultants & Senior Registrars, who after completing their post-graduation in ENT have developed an abiding interest & aptitude for pursuing a career in Implantation Otology. This course will offer them an opportunity to obtain hands-on experience in all aspects of Implantation Otology, with intensive training from highly qualified & well experienced professionals at a premier ear Implantation institute in India.

Training encompasses the diverse aspects of Implantation Otology, including comprehensive pre-operative clinical work up of patients, training in surgical techniques for implantation, Intra-operative & Post-operative Implantation Audiology & methods in Auditory Verbal Habilitation. Higher Surgical training will be provided in all the various implantation procedures like Cochlear Implantation, Auditory Brainstem Implantation, Bone Anchored Hearing Aids, Middle Ear Implants & Totally Implantable Hearing Devices.

2. Course Objectives:

The core objectives of this fellowship program is to train the candidates in all aspects of Implantation Otology including,

- updating knowledge on Ear Implants & related basic sciences
- honing & fine-tuning clinical acumen & surgical skills
- trouble-shooting & managing difficult scenarios
- training in data collection & clinical audit for research publications

At the culmination of this fellowship program, the candidate will be adequately trained to begin an individual Implantation otology practice.

3. Course Format & Training Schedule:

The fellowship program is divided into 3 sessions,

Session 1 (Duration = 3 months):– Out-patient clinical exposure at the Implantation Otology clinic for working up of patients, who will need Implantable hearing devices. The out-patient training includes direct interaction with patients for arriving at a clinical diagnosis, learning pre-operative work up protocols including knowledge of interpretation of high resolution temporal bone imaging & advanced objective audiological test battery which includes Otoacoustic Emissions, Brainstem Evoked Response Audiometry & Auditory Steady State Responses. Special training is given in the Vestibular Laboratory with Video Oculography & Vestibular Evoked Myogenic Potential testing done for patients with neurotology disorders. A detailed session is also dedicated to provide experience in pre-operative counseling of patients for various implants & explain the possible outcomes.

Session 2 (Duration = 6 months):– Supervised microsurgical dissection on dry & wet temporal bone specimens, in the temporal bone lab for learning implantation skills prior to OR exposure. Higher surgical training in OR for various Implantation procedures like – Cochlear Implants, Auditory brainstem implants, TIHA, BAHA & middle ear implants. Focus is on training in the various techniques of ear implantation, with exposure to intra-operative electrophysiology. Per-operative management of the patient is an integral part of this session.

Session 3 (Duration = 3 months):– Exposure to post-operative audiological procedures like Switch-On, Mapping & programming the implanted devices will be given at the Advanced Electrophysiological Lab. Hands-on training in different methods of auditory-verbal habilitation at the Hearing Habilitation Centre, MERF-Institute of Speech & Hearing (MERF-ISH).

4. Course Syllabus:

Unit I - Basic Sciences

- Embryology of the Auditory System
- Neurotology & skull base anatomy

- Micro-anatomy of the Cochlea & its neural connections
- Physiology of Auditory & Vestibular System
- Pathology & Immunology of the Ear
- Bio-films in relation to Ear Implants
- Osseo-integration Principle
- Syndromic & Non-syndromic Hearing Loss
- Genetic & Hereditary factors in Hearing Loss
- Stem cells & growth factors in Hearing Restoration
- Asepsis & Anti-sepsis protocols in Implantation OR
- Recent Advances & Future Directions in Implantation Otology

Unit II - Evaluation of the Auditory System

- Tests for Cochlear & Retro-cochlear function
- Radio-Imaging of the Auditory System
- Electrophysiological assessment of hearing
- Auditory Evoked Responses & Psychophysics
- Neurological assessment in relevance to Auditory System

Unit III - Clinical Aspects of Implantation Otology

- Candidacy for Implantation
- Current Protocols in Implantation
- Design & Structure of Implants – CI / ABI / TIHA / BAHA / MEI
- Bio-materials in Implantation Otology
- Surgical Principles in Implantation of the Ear
- Hearing preservation concepts & techniques in implantation
- Antibiotics in surgical prophylaxis
- Recent Advances in Ear Implants
- Binaural Implantation & its benefits
- Hybrid Implants / Electro-acoustic Hearing
- Pharmacotherapeutics used in Neurotology practice

Unit IV - Post Implantation Assessment

- Programming protocols & Mapping Technology
- Software Programs for assessing Implantation function
- Behavioural Response Audiometry Implantation aided Audiometry
- Electrophysiological tests - Uses & limitations

- Speech Processing Strategies in Cochlear Implantation
- Auditory Verbal Habilitation
- Outcomes with Implantation
- Long term effects of Implantation
- Quality of life measurement
- Psycho-social factors influencing hearing development
- Challenges unique to the Indian Scenario.