Course Curriculum

Fellowship in Phacoemulsification & Refractive Surgery (FPR)

Guidelines & Affiliation:

Rajiv Gandhi University Of Health Sciences, Karnataka,

4th T Block, Jayanagar, Bangalore- 560041

Curriculum: Fellowship in Phacoemulsification & Refractive Surgery

1) Name of the subject: Fellowship in Phacoemulsification & Refractive Surgery

2) Description:

a) Goals

The program is targeted at practicing ophthalmologists who wish to upgrade their skills in Phacoemulsification & refractive specialties. The clinical training involves fellows working in rotation in the Cataract & Refractive Surgery clinics.

• To gain a comprehensive exposure to Phacoemulsification & Refractive surgeries.

• To prepare a candidate for an academic career and to enhance post graduate teaching.

• To gain experience in community ophthalmology.

• To do clinical and basic research.

b) Statement of the Objectives of the course

i) Knowledge

Fellows inducted into this program will work the consultants in the Department of Cataract & Refractive Surgery. They will be exposed to various techniques of biometry (contact, immersion & optical) and the preoperative workup of LASIK, specialized intraocular lenses like Multifocal & Toric & phakic implants (ICL etc.).

ii) Skills and Attitudes

This fellowship program involves comprehensive patient care instruction with state of the art diagnostic and surgical equipment care backed by extensive work experience. The course provides them with up-to-date skills to ensure that diagnosis, treatment and surgery are accurate and timely. A patient friendly and compassionate attitude is inculcated at every stage of the knowledge and skills transfer program.

iii) Communication abilities

Periodic sessions will be organised to train the fellows in the following:

• Communication skills: oral and written

• Leadership skills: through participation in community work as the working head of the camps and screening programmes

• Use of technology for teaching and communication

o Internet to access journals, emails and websites

o Pubmed and Medline search for bio-medical literature

o Training sessions on PowerPoint presentations, use of Microsoft excel for statistics and projections

c) Course contents (Syllabus)

i) Essential knowledge

• Basic ophthalmology history and examination techniques

• Evaluation and management of a patient with cataract and the management of the postoperative complications

• Refraction and spectacle dispensing

•Evaluation of patients requiring cataract or refractive surgery

•Assisting the consultants in the workup, diagnosis & management (medical & surgical) of these patients. Performing these tasks independently under supervision after gaining adequate skills.

• Evaluation and timely referral of patients with more advanced diseases in the following subspecialties: Cornea, Glaucoma, Retina, Oculoplasty, Uveitis, Paediatric Ophthalmology and Strabismus

• Basic practice management principles: setting up a private practice, basic financial issues, and other issues and support systems for practice

• Communication basics: communicating with other doctors, paramedical personnel, community workers etc

ii) Essential Investigation and Diagnostic Procedures

• To perform or interpret results of procedures

• Cataract: Syringing, A-scan biometry (ultrasound & optical), Keratometry (manual & automated), B-scan

• Refractive- LASIK Work-up, Corneal Topography, Pachymetry, Specular Microscopy

iii) Procedural and Operative Skills

To perform following procedures (Assisted/Under Supervision)

• The fellows should perform a minimum of 50 surgeries during their academic year

• Manual small incision cataract surgery, Phacoemulsification, YAG capsulotomy,

• Refractive: Cases of Lasik/custom lasik / Epilasik, Phakic Lenses (assisted/under supervision)

d) Teaching / Learning Activities

• Departmental activities (please see below section e)

• Practical clinical training of post graduates (DNB in ophthalmology): Fellows are expected to participate in the training of DNB candidates. This can involve activities such as discussion of cases in an informal way on a regular basis to formal presentations in weekly meetings.

• Training of paramedical, and community health workers: Fellows may be requested by advanced notice to participate in training of paramedical personnel in the hospital or team members in community level. Hands on experience of conducting camps, communication and training of filed workers is expected to provide excellent experience and learning for the fellows.

• Journal Access: Our institution has access (both hard copies and online) to peer reviewed, reputed journals. The fellows are guided by their faculty to regularly update their knowledge by reviewing latest articles from these journals.

• Participation in state level and national level conferences, CMEs, seminars: fellows are expected to present at least one paper/ poster during their tenure in a CME meeting outside of the institution.

• Research Methodology Training: Periodically (every 3-6 months) training will be organized to cover the following topics:

o Research paper writing : basics

o Basics of epidemiology and biostatistics

o Regulatory issues in human research: Indian regulations and others

o Good clinical Practice (GCP) training

e. Participation in Departmental Activities

(1) **Journal review meetings**: Will be held once in every 2 weeks. One of the presenters will (typically a fellow or a post-graduate) present an interesting article from a recent journal. The validity of research methods, the findings, the applicability, and clinical implications of the findings will be critically reviewed and discussed. One of the faculty members moderates the entire proceedings and will summarize the discussion at the end of the session.

(2) **Seminars**: Subject seminars will be held once a week. Topics of importance are covered. Either the fellow or a faculty will present a detailed account of a particular topic for ex.: a diseases or drug or new therapy etc. Interaction is strongly encouraged in such presentations.

(3) **Clinico-pathological conferences**: Basic science faculty will be invited to discuss challenging cases wherein a diagnosis was finally achieved through the laboratory help.

(4) **Interdepartmental meetings**: These will be of great importance in better understanding of diseases which have involvement of different disease processes or involve multiple structures in the eye. Also some the patients may have associated systemic conditions and having a meeting with other specialists such as physicians, neurologists, endocrinologists may be of great importance.

(5) **Community work- camps/ filed visits**: Fellows are expected to participate in community programs. We have regular weekly camps as well special camps organized from time to time.

(6) **Clinical case presentations**: Every week, interesting and important cases will be discussed. Learning by case study approach is a well established method of training and fellows will be strongly encouraged to discuss cases with the mentors on a regular basis.

(7) **Participation in conferences/ presentation of papers**: Fellow is strongly encouraged to work with faculty in producing good quality research and they are encouraged to present and publish such papers. One paper presentation or a journal article submission is required for course completion.

3. Orientation Programme

An orientation programme for a period of 7 days will be scheduled at the beginning of the fellowship program. The following components will be included in the orientation:

• General and Human resource related:

o Hospital policies regarding patient care, employment, leave and all human resource related matters

o Security, emergency, disaster management in the hospital

o Employees benefits

• Patient care

o Policies

o Emergency management

o Documentation

o Surgery scheduling, OT procedures, preanaesthetic evaluation

o Policies for Referrals to other doctors and hospitals : internals, external

• Laboratory: Requests, communication, precaution for specimen handling, emergency Handling of specimens

Library:

o Rules regulations

o Procedures for borrowing

o Plan for materials not available inhouse

o Online access , use of internet, use of pubmed and medline search

o Access to password protected library e.x: RGUHS library (after the access becomes available to us).

• National Programmes for Prevention of blindness (like NPCB)

o Other NGO and programmes

4. Training in teaching skills and research methodology

A half a day session will be organized every 3-6 months that will train all the post graduates and fellows in the following:

• Communication skills: oral and written

• Use of technology for teaching and communication

o Internet to access journals, emails and websites

o PowerPoint presentations, excel for statistics and projections

o Pubmed and Medline search

• Research Methodology

o Research paper writing : basics

o Basics of epidemiology and biostatistics

o Regulatory issues in human research: India regulations

o Good clinical Practice (GCP) training

f. Monitoring of Teaching and Learning Activities

Monitoring of Learning

Periodic evaluation of log book (end of every month):

• Fellows are expected to document clinical and surgical work is a systematic manner in a logbook that is specifically designed for this purpose. Academic program participation should also be documented in the log book.

• Periodic Internal examinations: clinical assessment (end of every 3 months): Clinical assessment would be held at the end of every 3 months. This may include clinical case presentation, and clinical case quiz.

• Theory and Practical examination at the end of the course per RGUHS regulations. (section 10. Scheme of assessment: RGUHS notification, dated 22-09-2006, Ref: ACA/Fellowships/Rules-1/2006-07).

Monitoring of operative skills:

• Wet lab training under supervision and with video recording facility on animal or model eyes.

• Surgery performed under supervision: Fellows will perform surgeries under supervision till an appraisal is given by the faculty regarding the competence level to handle independent surgeries.

• Review video recorded surgeries with the trainees (once a month): Faculty members will review the approach, alternatives and potential ways of handling complications if any while reviewing an actual surgical procedure. Such learning experience can be supplemented by viewing additional videos of surgeries performed by the faculty.

Monitoring of teaching and communications skills:

• Grading and appraisal of post graduate teaching seminars: Faculty members will critically apprise a fellow of their performance during a seminar or case presentation that they may do for the post graduates.

• Encouraging presentation in conferences at state and national levels: Fellows will be encouraged and trained to present papers at conferences outside of the institution.

Monitoring of research:

Fellows are expected to complete at least one project work during the course duration which will result in one submission to a conference and or a journal.

Appraisal of faculty:

Anonymous trainee appraisal of the faculty: Fellows will be requested to give a 3600 word evaluation of their faculty and appraise regarding them at the end of each posting. Such evaluation will be kept anonymous and confidential to avoid any conflicts or fear.

Faculty appraisal by fellowship monitoring committee: A monitoring committee from the institute will be set up to constantly monitor the progress of the programme, fellows well being and to facilitate an excellent learning and teaching environment.

1.2. Scheme of Examinations

Examination and assessment will be conducted as per directions from RGUHS (section 10. Scheme of assessment: RGUHS notification, dated 22-09-2006, Ref: ACA/Fellowships/Rules-1/2006-07).

1.3. Recommended Books and Journals

Books:

1. The Current American Academy of Ophthalmology Basic and Clinical Science Course (12 volumes)
2. Abrams D. Duke Elder's *Practice of Refraction*. Churchill Livingstone. This text covers the basic principles of refraction.
3. Duane's Clinical Ophthalmology By William Tasman, Edward A. Jaeger, Thomas David Duane2005
4. Principles and Practice of Ophthalmology by Daniel Myron Albert, Frederick A. Jakobiec - 2000. *Principles and Practice of Ophthalmology*. W B Saunders.
5. Ophthalmology, 2nd Edition By Myron Yanoff, MD and Jay S. Duker, MD
6. Kanski JJ. *Clinical Ophthalmology*. Butterworth/Heinemann. Fifth Edition
7. The Wills Eye Manual: Office and Emergency Room Diagnosis and Treatment of Eye Disease
8. Forrester JV, Dick AD, McMenamin PG, Lee WR. *The Eye. Basic Sciences in Practice.* W B Saunders.
9. Harry J, Misson G. *Clinical Ophthalmic Pathology*. Butterworth/Heinemann.
10. T. Kohnen & D.D. Koch *Cataract & Refractive Surgery*
11. F. Hampton Roy *Master Techniques in Cataract & Refractive Surgery*

Journals:

i. Indian Journal of Ophthalmology
ii. Chakshu: Journal of Karnataka Ophthalmological Society
iii. Ophthalmology
iv. American Journal of Ophthalmology

v. British Journal of Ophthalmology

vi. Archives of Ophthalmology

vii. Survey of Ophthalmology

viii. Journal of Glaucoma

ix. Journal of Cataract & Refractive Surgery

SYLLABUS

(To refresh knowledge obtained during post graduation and supplement new information).

OPHTHALMIC HISTORY TAKING

Current ophthalmic symptoms, past ophthalmic history, refractive history, general medical history, medication allergies, family history, social history, occupation

METHODS OF CLINICAL EXAMINATION

Optometric Evaluation

• Retinoscopy: subjective and objective

• Proficiency in the use of the retinoscope to perform an objective refraction

• Detection of abnormalities of the red reflex

• Lensometer

Slit lamp examination

• Direct, focal, retro, sclerotic scatter and corneal endothelium specular reflection illumination techniques

• Estimation of anterior chamber depth and angle configuration

• Illumination filters

• Use of Diagnostic lenses, (including 90 or 78 diopter fundus lenses), Gonioscope.

Direct ophthalmoscopy

• Detection of abnormalities of the red reflex

• Ability to perform fundus examination

Indirect ophthalmoscopy

• Proficiency in the use of the indirect ophthalmoscope to examine the peripheral retina and detect pathology

• Knowledge of scleral indentation technique, indirect lenses (14, 20, 28 dioptre etc.), potential hazards of bright light sources.

Tonometry

• Optical and technical theory, clinical use, advantages and limitations of:

• Applanation tonometry, Tonopen, Non-contact Tonometry

Ophthalmic imaging and measurement techniques

• Ophthalmic ultrasonography, including UBM

• Corneal pachymetry

• Corneal topography

• Endothelial specular microscopy

• Optical Coherence Tomography

SURGICAL

OBJECTIVE:

To acquire proficiency in assessment and contemporary management of (adult) cataract (MODERATE TO ADVANCED LEVEL OF KNOWLEDGE AND SURGICAL COMPETENCE).

ESSENTIAL SURGICAL EXPERIENCE

i) Fellow will perform a minimum number of cataract surgeries (SICS & Phacoemulsification) to allow a comfortable level **o**f competence for doing independent surgeries**.**

ii) Exposure to theoretical aspects, principles and observation of refractive surgery dependent upon case load availability, and satisfactory progress in surgical competence level.

CORE CURRICULUM

a. Surgical and anaesthetic techniques

b. Complications of surgery and anaesthesia

c. Biometry (keratometry & axial length determination) to indicate IOL power leading to target post op refraction. The fellow should be draw up a management plan leading to a target post op refraction after discussion with the patient; this should include at least a theoretical knowledge of astigmatic management during cataract surgery.

d. Routine Small Incision Cataract Surgery (SICS), phacoemulsification, to include capsulorhexis and placement of PC IOL (including foldable lenses), using a variety of contemporary forms of anaesthesia.

e. Management of difficult cataract cases. This should include cases with hard nuclei (by phacoemulsification and/or ECCE), small pupils, previous vitrectomy and/or trauma, high myopia, pseudoexfoliation, and mature and hypermature lenses.

f. Management of intraoperative complications (including vitreous loss by anterior vitrectomy and wound leak by suturing).

g. Implantation of other IOL types (e.g. AC in complicated cases, secondary AC and PC IOLs).

h. Management of post op complications, including raised pressure, endophthalmitis, cystoid macular oedema and posterior capsular opacification (by laser capsulotomy).

i. Management of cataract in the presence of retinal disease (e.g. ARMD; and especially in the presence of diabetic retinopathy).

j. Management of adverse refractive outcomes of cataract & refractive surgery.

DESIRABLE EXPOSURE TO:

i) Management of the dislocated crystalline lens.

ii) Scleral sutured IOLs and IOL exchange.

iii) Piggy-back IOLs.

iv) Attendance at refractive surgery clinics, including exposure to excimer laser techniques to provide understanding of the common complications and their acute management.

SYLLABUS AND SCHEME OF EXAMINATIONS

THEORY EXAMINATION

Paper I:

Part A: Basic Sciences:

Refraction & refractive errors

Basic instrumentation: slit lamp, gonioscopy, retinoscopy, direct ophthalmoscopy, tonometry,

Part B: **Clinical sciences:**

Cataracts (management of senile, traumatic, complicated, post vitrectomy & those associated with other ocular abnormalities like high myopia & coloboma)

Refractive disorders: Myopia, hypermetropia, Astigmatism, Presbyopia

Paper II:

Part A: Investigations And Diagnostic Procedures

General Ophthalmology and Cataract- A-scan biometry, Keratometry, Pachymetry, Corneal topography, Specular Microscopy, OCT, B-scan, UBM

Part B: Surgical Procedures, Recent Advances

1) Cataract: SICS, Phacoemulsification
2) Refractive Surgery
   PRK,LASIK,LASEK, Phakic IOL
   Wave front Technologies, Presbyopia Surgeries, Lenticular Procedures, Femtosecond Laser, Recent Advances

PRACTICAL EXAMINATION

Total Marks : Case Presentation – 100 Marks

Viva-Voce – 100 Marks

Long Case - 1

Short Cases - 2