MS IN OPHTHALMOLOGY

CHAIRMAN

OPHTHALMOLOGY DEPARTMENT

Peoples University of Medical & Health Sciences Hospital
Nawabshah, (Distt: Shaheed Benazir Abad)

MSOPHTHALMOLOGY

1.GOAL

A postgraduate student in ophthalmic surgery at the end of 4 yr course should develop proper clinical skills and make diagnosis and correlate with the symptoms and from the history taken and also be capable to diagnose diseases in his/her specialty and manage them as effectively as possible and take decisions for the patients best interest including referral to a senior consultant if there is any difficultly

Teaching ability

The student should be able to teach MBBS students about the common ophthalmic diseases basic pathophysiologic aspect and general and basic managements

Research ability

The student must acquire knowledge about research methodology including record maintaining and to conduct proper research enquiry with proper analysis and writing reports

Team work

The student should be able to work as a team with good communication ability with the patients relatives particularly in emergency situations the student should also be able to maintain human values with ethical consent

OBJECTIVES

At the end of 4 yr PG degree course the student should develop cognitive knowledge including basic sciences the student should be an expert in clinical decision making and management .The student should be well versed in cornea cataract surgeries, glaucoma, strabismus, orbit and oculoplasty, retina, uvea diseases diagnosis and management and be able to handle children in pediatric ophthalmology and to differentiate betweenneurology and neuro ophthalmic lesions.

2.COURSE OVERVIEW

Duration of the Course

The period of certified study and training for the Post-Graduate MS OPHTHALMOLOGY shall be four Academic years.

Commencement of Academic Session

The academic session for the Post-Graduate shall commence twice a year.(April and octubar)

Number of Examinations

The University shall conduct not more than two examinations in a year, for
any subject, with an interval of not less than 4 and not more than 6 months between the two examinations.

Attendance

All students joining the postgraduate training programme shall work as full time residents during the period of training, attending not less than 80% (eighty percent) of the training during each calendar year, and will be given full time responsibility, assignments and participation in all facets of the educational process.

The period of training for obtaining the degrees shall be four completed years including the period of examination.

3.COURSE AND DETAILS

First Year:-

- Out Patients
- Refraction

Second Year:-

- Out Patients
- Casualty
- In Patients
- Refraction

Mid term ~~IMM~~: MTA (Midterm Assessment)

1. Student passing IMM be allowed to proceed training.
2. The IMM will be comprising of theory and TOACS exam.
3. IMM will mainly cover the refraction section

Third Year:-

- Out Patients
- Casualty
- In Patients
- Operation Theater
- Eye Camp and Community Ophthalmology
- Laser section

Fourth Year:-

- Out Patients
- Casualty
- In Patients
- Operation Theater
- Eye Camp and Community Ophthalmology

- Laser section
- Rotation to Neurology, Radiology and Dermatology deptt.

DETAILS OF SYLLABUS

Basic sciences and applied

Anatomy

- Anatomy of lids
- Lacrimal passage
- Extra ocular muscles
- Cornea
- Angle of anterior chamber
- Uveal tract
- Lens
- Vitreous
- Retina;
- Optic nerve and visual pathway

Developmental Anatomy of Eye

- Bony orbit, spaces of orbit and cranial fossa
- Cavernous sinuses
- Blood supply to the eye and adnexa
- Blood supply of visual pathway - circle of willis
- Cranial nerves
- Autonomous supply to the eye
- Ventricles of the brain

Physiology

- Maintenance of corneal transparency
- Lacrimal secretion and tear film layers
- Formation and circulation of intra ocular fluid
- Maintenance of intra ocular tension
- Papillary reaction and their pathway
- Papillary reflexes
- Theories of accommodation
- Accommodation - covergence relationship
- Blood aqueous barrier
- Physiology of vision

- Theories of colour vision
- Binocular vision
- Blood retinal barrier
- Electrophysiology
- Axonal transmission of impulses
- Visual perception of cerebral cortex

Biochemistry

- Carbohydrate metabolism
- Metabolic disorders of lipids
- Amino acid - normal and abnormal metabolism
- Metabolism of cornea
- Metabolism of crystalline lens
- Biochemical changes of lens leading to cataract
- Photochemistry of vision
- Structure and metabolism of vitreous

Pharmacology

- Miotics, mydriatics, cycloplegics
- Parasympatholytic drugs
- Cholinergic drugs
- Sympathomimetic drugs
- Sympatholytic drugs
- Sympatholytic drugs
- Penetration of topically applied drugs
- Teat replacement substances
- Drug penetration of blood aqueous barrier
- Principles of cortisone and ACTH therapy
- Principles of antibiotic therapy
- Fluoroscein eye
- Anticoagulants

Anti viral drugs

- Anti fungal; drugs
- Immunosuppressive drugs
- Vasodilators
- Drugs used in glaucoma

- Anti neoplastic medications
- Preanasthetic medications
- Topical anesthesia
- Local anesthesia
- Anti diabetic drugs
- Anti hypertensive drugs
- Shock therapy
- Vitreous substitutes and aqueous substitutes

Pathology

- General consideration of inflammation of eye and adnexa
- Vascular changes un age, hypertension, and diabetes
- Benign and malignant tumours of eye and adnexa
- Dystrophy and degeneration of conjunctiva, cornea and retina
- Metabolic diseases
- Fungal granuloma
- AIDS

Microbiology

- General microbiological characteristics of bacteria, viruses, fungi and parasites
- Resistance and immunity
- Antigen antibody reactions
- Toxicity and hypersensitivity reactions
- Gram positive group - staphylococci, streptococci, pneumococci, corynebacterium diphtheris and xerosis
- Gram negative group - neisseria, moraxella, kochs bacilli, brucella,

- Mycobacteria and micrococcacia
- Viruses
- Herpes zoster
- AIDS viruses
- Fungi
- Aspergillus
- Fusarium
- Candida
- Parasites
- Cysticercus
- Hydatidcyst
- Loa loa
- Microfilaria
- Intestinal nematodes

Applied optics

- Geometric and ophthalmic Optics
- Basic physical optical devices
- Ophthalmic optics
- Applied optics including optical devices

ClinicalOphthalmology

- Disorders of refraction
- Disorders of the lids
- Disorders of the lacrimal system
- Disorders of the conjunctiva
- Disorders of the sclera
- Disorders of the cornea
- Disorders of the uveal tract
- Disorders of the lens
- Disorders of the retina
- Disorders of the optic nerve and visual pathway
- Disorders of the orbit
- Glaucoma
- Neuro Ophthalmology
- Paediatric Ophthalmology
- Systemic Ophthalmology (Ocular involvement in systemic diseases)
- Immune ocular disorders
- Strabismus and ambylopia
- Recent trends in Ophthalmology
- Community Ophthalmology

ESSENTIAL DIAGNOSTIC SKILLS - INSTRUMENTATION

Tonometry

- Applanation
- Indentation (Commonly schiotz)

Assessment of epiphora

- Jone's dye test
- Syringing - performance and interpretation

Dry eye evaluation

- Schrimer's test
- Rose Bengal staining
- Tear meniscus evaluation

Corneal ulceration

a) Taking a corneal scraping
b) Inoculation into media
c) Evaluation of Gram's stain
d) Evaluation of KOH preparation

Direct Ophthalmology

a) Distant direct
b) Media assessment
c) Use of filters provided

In Direct Ophthalmology

a) Scleral depression
b) Fundus drawing capability
c) Use of filters provided

Slit lamp Examination

a) Diffuse examination
b) Focal examination
c) Retroillumination - direct and indirect
d) Sclerotic scatter
e) Specular refection
f) Staining modalities and interpretation

Slit lamp Accessories

a) Applanation tonometry - Goldman' applanation
b) Gonioscopy-
- single mirror gonioscope
- grading of the angle
- testing for occludability
- 'indentation of gonioscope

c) 3 - mirror examination of the fundus
d) 78 - D/ 90- D/ 60 - D Examination

Colour vision evaluation

a) Ishihara pseudoisochromatic plates

Use of Amsler's grid

a) instructing in the use of and interpreting the chart

Keratometry

a) Performance and interpretation of keratometry
b) Diagnosis of situations like keratoconus
c) Keratoscopy

Fundus photography and fundus fluorescein angiography (FFA, FAG)

a) Performance of and interpretation
b) Performance of indirect fluorescein angiography

Refraction

a) Retinoscopy
b) Streak retinoscopy
c) Use of trial set
d) Use of jackson's cross - sylinder
e) Subjective and objective refraction

Diagnosis and assessment of Squint

a) Ocular position and motility examination
b) Versions, ductions and vergences
c) Convergence facility estimation
d) Cover/uncover/alternate cover test
e) Use of prisms bars of free prisms in assessment of squint
f) Use of Bagolini's striated glasses/red filters/ Maddox red
g) Use of Worth's four dot test
h) Use of major amblyoscope
i) Use and interpretation of the Hess chart/Less screen
j) performance and interpretation of diplopia charting
k) diagnosis of ambylopia

Exophthalmometry

a) measurement of proptosis or exophthalmos

Use and evaluation of ophthalmic ultrasound

a) A scan ultrasound with biometry & B scan

Interpretation of perimetry

a) Lister's & Automated Perimetry
b) Interpretation of commonly managed problems

Radiology

AP - 20 (Caldwell's view)

PNS (Water's view)

Lateral

Submentovertical

Optic acnal views

Localisation of intra ocular and intra orbital FB's

a) Interpretation of cantrast studies
b) Interpretation of CT scans - orbital CT Interpretation

OPERATING THEATRE

A. **Anaesthesia**

a. Retrobulbar anesthesia
b. Peribulbar anesthesia
c. Facial blocks

1. O' Brien 2. Atkinson
3. Van Lint & Modification

d. frontal blocks
e. infra orbital blocks
f. blocks for sac surgery

B. **Magnification**

a) Operating microscope - familiarity with use is essential

C. **Lid surgery**

a) Tarsorraphy
b) Ectropion and entropion procedures
c) Lid repair following trauma epilation
d) Ptosis correction

D. **Destructive procedures**

a) Evisceration with or without implant
b) Enucleation with or without implant
c) Exentration

E. **Sac surgery**

a) Dacryocystectomy
b) Dacrocystorhinostomy
c) Probing for congenital obstruction of nasolacrimal duct

F. **Extraocular muscle surgery**

a) Recession and resection procedures of the horizontal recti
b) Vertical & oblique muscle surgery

G. **Cataract Surgery**

a) Standard ECCE with or without IOL implantation
b) Small incision ECCE with or without IOL implantation
c) Secondary AC or PC IOL implantation
d) Vectis extraction
e) Phacoemulsification

H. **Orbit surgery**

a) Incision and drainage via anterior orbitotomu for abscess

I. **Vitrectomy**

a) Intra vitreal and intra cameral (anterior chamber) injection techniques and dosages, particularly for endophthalmitis management.
b) Needs to know the basis of open sky vitrectomy (anterior segment) as management of cataract surgery complication

J. **Keratoplasty**

a) Assisting penetrating keratoplasty (therapeutic, optical)

K. **Glaucoma surgery**

a) Trabeculectomy
b) Pharmacological modifications of traneculectomy
c) Cyclocryotherapy

L. **Surface ocular procedures**

a) Pterygium excision with modification
b) Conjenctival graftings
c)

OUT PATIENT PROCEDURES

a) Manual diagnostic procedure such as syringing, corneal scraping, conjunctival swab collection, scraping etc.
b) Conjunctival and corneal foreign body removal on the slit lamp

c) Chalazion incision and curettage
d) Pterygium excision
e) Biopsy of small lid and tumours
f) Suture removal - skin, conjunctival, corneal and corneoscleral
g) Tarsorraphy
h) Subconjunctival injection
i) Retrobulbar, parabulbar anesthesia
j) Posterior sub - Tenon's injection
k) Artificial eye fitting

ESSENTIAL RESEARCH SKILLS

Basic statistical knowledge

a) Ability to undertake clinical and basic research
b) Descriptive and inferential status
c) Ability to publish result of one's work
d)Ability to constructively criticize publications in the field

This could be achieved during the course by attending workshops on research methodology, basic statistics classes and regularly having journal clubs ste., where selected articles would be taken and evaluated for content quality and presentation.

OTHER SKILLS REOUIRED

1) **Contact lenses**

a) Assessment
b) RGP fitting
c) Soft lens fitting
d) Troubleshooting & Management

2) **Subjective correction of refraction**

a) Techniques of subjective correction
b) Knowledge of basic optical devices available and relative advantages
and disadvantages of each

3) **Low vision aids**

a) The basics of fitting with knowledge of availability and cost

4) **Community ophthalmology**

a) Ability to organize institutional screening
b) Ability to organize peripheral eye screening camps
c) Knowledge and ability to execute guidelines of National Programme
for prevention of blindness

5) **Presentation**

a) Ability to present one's work effectively particularly free papers in scientific conferences without allotted framework of time.

6) **Organization**

a) Ability to organize meetings, seminars and symposia
b) Ability to get along with colleagues and work as a team with the other
members of the department

c) Ability to interest with and work as a team with other disciplines that may exist in the Hospital

7) **Communication skills**

a) With patients

b) With colleagues

8) **Record keeping**

a) Ability to maintain records as scientifically as possible

b) Knowledge of computer software is helpful

9) **Teaching**

a) Ability to pass on skills acquired to one's junior, the therortical, procedure and surgical

10)**Academic activities**

INTEGRATE D TEACHING PROGRAM

- Twice a week case presentation in morning
- Four days a week lectures for under/Post graduates
- Observation, Assistance and indepandant laser procedures in rotation
- Observation, Assistance and indepandant surgical procedures in rotation
- Case briefing in OPD

MAINTENANCE OF LOG BOOK

Every Post Graduate student shall maintain a record of skills He/She has acquired during the four years training period certified by the supervisor and cosupervisor