BRANCH – IX D.M. RHEUMATOLOGY

Curriculum – D.M. Rheumatology – Three Years Course

The schedule of Posting and training programme for three years period of study: year wise training programme for D.M. Rheumatology.

First Year:

Rheumatology Department
Out-patient/Wards/Laboratory — One Year

Second Year:

Peripheral Posting-

Nephrology	One Week	3 months
Dermatology	One Week	
Orthopaedics	One Week	
Radiology	Four Weeks	
Ophthalmology	One Week	
Physical Medicine & Rehabilitation	One Week	
Tuberculosis Research Center	Three Weeks	

(for learning Immunological Investigations)

Students who are posted outside should attend Theory classes, Journal club and case presentation daily at the Department of Rheumatology in the afternoon.

Rheumatology Department:

OP/Wards/Laboratory — Nine Months

Ultrasonagraphy 2 months & Laboratory 2 months included in nine months

Third Year:

Rheumatology Department-

OP/Wards/Laboratory — One year

Laboratory – 2 months included in one year

Besides the above, Synovial aspirations, Intra articular injections, Arthroscopy, interpretation of X-rays, CT Scan, M.R.I, and Ultrasound are to be undertaken.

DISSERTATION :

Every D.M. Rheumatology student should do a Dissertation in Rheumatology and Immunology and submit as per the Tamil Nadu Dr. M.G.R. Medical University Regulations. Submission of Dissertation to the University is mandatory for appearing. D.M. Rheumatology University Examination.

1. Basic Principles in Rheumatology:-

a) Biology of Joints

b) Articular Structures:- Hands - Wrists - Elbows -Shoulders – Neck - Low Back- Spines - Hip joint and Pelvic Girdle - knees – ankles-feet.

c) Connective tissue:- Normal and Pathological synovial tissue - collagen - collageneses - proteoglycans - mediators derived from polyunstructured fatty acids - prostaglandins –thromboxanes - leukotrienes - mediators of acute and chronic inflammation - vascular endothallum – interleukins – free redicals - nitric oxide - apoptosis.

d) Formation and resorption of bone - bone as a tissue and an organ.

e) Muscle: Anatomy - contractile proteins - ultrastructure of the muscle fibre - neuro muscular junction -physiology of motor unit- excitation - contraction coupling - bio-chemistry of contraction — muscle energy metabolism — pharmacology of the motor unit.

f) Nerve: Neuropathies of special interest in Rheumatology - laboratory investations – painbath ways

g) Synovial physiology

h) Collagen in normal and diseased connective tissue:-

Chondrocyte structure and function - articular cartilage.

i) Immunology:

Immunology – cells involved in auto immune diseases and inflammation – Antigen presenting cells- Innate immunity – T-cells – B-cells-Synoviocytes – Fibroblast function & fibrosis – chondrocytes – Neutrophils & eosinophils – platelets and rheumatic diseases.

Effector mechanisms in auto immunity & inflammation – auto immunity – Genetics of rheumatic diseases – Rheumatoid factor – ANA – Immune complexes – complement system – prostaglandins, Leucotrines &

related compounds – Endothelial cell biology, angiogenesis and requirement of cells – cytokines – Apoptosis

Diagnostic Procedures:

a. Synovial fluid aspiration
b. Aspiration and injection of joints and soft issue
c. Rheumatoid factor - latex, Rosewaller, Elisa, Nephelometry
d. Antinuclear antibodies and L.E, cell phenomenon
e. Antiphospholipid antibodies
f. Nuclear and Cytoplasmic antibodies - ANCA
g. Anti Streptococcal antibodies
h. Acute phase reactants
i. Synovial biopsy
j. Radiology of joints
k. Radio Isotopic assessment of joints and bones - C.T.; MRI in Rheumatology - Ultrasonogram of joints and soft tissues.
l. Arthrography - Thermography - Arthoroscopy
m. HLA Typing
n. Immuno Fluorescence
o. Elisa
p. Immunoblotting
q. Polymerase Chain Reaction (PCR)
r. Neuromuscular testing, Electrophysiology
s. Biological markers of rheumatic diseases

(1) Differential approach to major rheumatic syndrome:

Examination of Joints:- Acute and chronic monoarticular arthritis -

Polyarthritis - temporomandibular joint diseases-shoulder and neck pain -low back pain - foot pain - the fibro-myalgia syndrome - skin and rheumatic diseases - eye and rheumatic diseases - neurologic manifestations - cardiac manifestations pulmonary manifestations of connective tissue diseases - arthritis and gastrointestinal and liver diseases - nutrition and rheumatic diseases -Psychosocial aspect of rheumatic diseases - kidney and rheumatic diseases.

2. Clinical Pharmacology in Rheumatic diseases:-

Developing a clinical trial design - salicylates – nonsteroidal anti inflammatory drugs - anti malarials - gold compounds - D.Penicillamine - methotrexate - glucocorticoids - sulfasalazine - leflunomide immunoregulatory agents -cytotoxic agents - therapeutic aphresis - Ionizing radiation - antilymphocyte antibodies - Cyclosphrine A and other agents NSAID gastropathy - antihyperuricemic drugs - tetracyclines - intravenous - immunoglobulin -autologus stemcell transplantation - leflunomide – Biologicals.

3. Specific articular and connective tissue diseases:-

Rheumatoid arthritis - Felty's syndrome – Sjogren's syndrome - spondyloarthropathy - ankylosing spondylitis - Reiter's syndrome, reactive arthritis - HLA B 27 related and non-related arthritis - Adult Still's disease. Psoriatic arthritis - enteropathic arthritis - systemic lupus erythematosus - mixed connective tissue disease - over lap syndromes - vasculitic syndrome - vasculitides and related disorders - polyarteritis - vasculitis associated with rheumatic diseases - hypersensitivity - vasculitis - Churg - Strauss Vasculitis - Wegener's Granulomatosis - Takayasu's arteritis, Cogon's syndrome - Kawasaki's disease -giant cell arteritis - polymyalagia rheumatica - Behcet's disease Scleroderma - localised fibrotic disorders - eosinophilic fascitis - scleroderma - inflammatory disease of muscle - polymyositis - dermatomyositis - gout and related disorders of purine metabolism - diseases associated with deposition of calcium pyrophosphate or hydroxyapatite - osteoarthritis – relapsing polychondritis - amyloidosis - sarocoidosis -iron storage disease - muticentric reticulohistiocytosis - Ochronosis - infectious arthritis - bacterial arthritis - mycobacterial and fungal infections - lymes disease -viral arthritis hemophilic arthropathy - Hemoglobinopathies and arthritis -arthropathies associated with endocrine disorders - hypertrophic osteoarthropathy - neuropathic joint disease musculoskeletalsyndrome associated with malignancy -heritable disorders of structural proteins - metabolic bone disease - osteoporosis osteonecrosis osteomalacia involving joints - rheumatic fever - childhood S.L.E. and dermatomyositis - Scleroderma, vasculitis, antiphospholipid antibody syndrome, soft tissue rheumatism - rheumatic, complications of drugs - ANCA related vasculitis - panniculitis - hyper lipidemias -tumours and tumor like lesions involving joints - hypermobility syndromes, reflex sympathetic dystrophy - familial mediteranean fever - Paget's disease.

4. Medical orthopaedics and rehabilitation:-

Sports Medicine - entrapment neuropathies - chronic pain syndromes and management - Physiotherapy - occupational therapy - health outcome assessment -rehabilitation of patients with rheumatic diseases

5. Reconstructive surgery in rheumatic diseases:

Principles of reconstructive surgery – pre-operative evolution – choice of procedure – post operative management and follow up – surgery in children.

Disease Activity scoring

PATTERN OF EXAMINATION:

Theory – 4 Papers, 100 Marks each Duration: Three hours each

Paper – I	Applied Basic sciences and Diagnostic Procedures in Rheumatology and Clinical Immunology		100
Paper – II	Clinical Rheumatology and Clinical Immunology	100	
Paper – III	Clinical Pharmacology Rehabilitation Surgery, Speical problems relating to Rheumatic Diseases, Paediatric Rheumatology, Pregnancy and Rheumatic Diseases.	100	
Paper – IV	Recent Advances in Rheumatology and Immunology	100	

Distribution of Marks: *

Two Essays 20 Marks each (20 x 2)	40 Marks
Ten short notes 6 Marks each (10 x 6)	60 Marks
Total	100 Marks

Practical / clinical and oral examination **

	No.Of Cases	Duration	Marks
LONG CASE	One	One Hour	75
SHORT CASES	Two	One Hour (30 Mts Each)	75
WARD ROUNDS	Four (Minimum)	One Hour	50
			200
Practical			100
Oral / Viva Examination			100
Total			400

PRACTICAL:

The candidate can be asked to do less time consuming tests like latex agglutination tests like Rheumatoid factor, C.Reactive protein, Anti Streptolyssin O titre and the knowledge of the priniciples and methodology of any one of the following tests can be evaluated:

1. Rose – Waller Test
2. Immuno fluorescence Tests
3. Enzyme Linked Immuno Sorbent Assay (Elisa)
4. Single Radial Immuno Diffusion
5. Electrophoresis
6. S.D.S PAGE
7. Immuno Blot
8. HLA Typing / Cross Matching
9. Synovial fluid Analysis
10. Crystal Identification

ORAL:

1. Pathology Slides
2. X-ray, Ultrasound, CT & MRI interpretation
3. Clinical Oriented problems
4. Topic Discussion
5. Discussion about dissertation

Note: Not more than three candidates will be examined in practical examination per day. If four candidates are appearing (Now, 4 DM students have joined in 2010) two days exams to be conducted.

DISSERTATION: Approved/Not approved

MARKS QUALIFYING FOR A PASS:

	Maximum Marks	Marks Qualifying for a pass (50%)
Theory	400	200
Practical	300	150
Oral/ Viva	100	50
Aggregate	800	400