

Dr.NTR University of Health Sciences

Vijayawada

SYLLABUS

“POST DOCTORAL FELLOWSHIP

COURSE IN DIABETOLOGY”

for the academic year 2018-19

1. Name of the Course: Fellowship course in Diabetology
2. Duration of the course: One year
3. Eligibility Criteria for admission: MD / D.N.B in General Medicine recognised by Medical Council of India/National Board of Examinations.
Intake capacity: 2 per year.
4. Complete curriculum of the course:
 - a. **Goal**:
To provide candidates specialised training and skills necessary for appropriate diabetes care to patients with Diabetes Mellitus.
 - b. **Objectives**:
 - To provide information on basic, clinical and management aspects of diabetes
 - To provide comprehensive diabetes care for Urban and Rural population
 - To familiarize diet counseling, physical activity programmes and diabetes education
 - To impart competence in dealing with diabetes up to secondary level and preview for referring to tertiary care e.g. Diabetic retinopathy, neuropathy, coronary artery disease, peripheral vascular disease, nephropathy etc..
 - To develop leadership in prevention and control of diabetes and forming support groups for diabetes health care
 - To be able to handle diabetes inpatient care including diabetic emergencies
 - Plan and carry out research in diabetes care in clinical and community settings.

5. Course Content:

I. Basic Science:

- History of Diabetes
- Anatomy & Development of Pancreas
- Insulin Biosynthesis & Secretion
- Mechanism of Insulin action and regulation of glucose and lipid Metabolism
- Glucagon, Glucagon like Peptide and Insulin like growth factors.
- Animal models for the study of Diabetes.

II. Diabetology:

- Definition, Diagnosis and classification of Diabetes
- Epidemiology of Diabetes
- Genetics of Type 1 and Type 2 Diabetes
- Insulin resistance & beta-cell dysfunction in Type 2 Diabetes
- Secondary forms of diabetes
- Maturity Onset Diabetes in Young (MODY)
- Obesity assessment and Management
- Metabolic Syndrome
- Clinical features and examination in patients with Diabetes mellitus

III. Management of Diabetes:

- Patient Education
- Medical Nutrition therapy
- Laboratory investigations in Diabetes
- Oral anti-Diabetic Drugs
- Principles of Insulin therapy
- Insulin analogues
- Insulin delivery devices
- Hypoglycemia and its management
- Self Monitoring of Blood Glucose
- Exercise, physical activity and non drug therapy in DM

IV. Complications of Diabetes:

a) Acute metabolic complications:

- Diabetic ketoacidosis
- Hyperosmolar Hyperglycemic states
- Hypoglycemia

b) Chronic complications:

Micro vascular

- (i) Retinopathy
- (ii) Nephropathy
- (iii) Neuropathy

Macro Vascular

- (i) Coronary artery disease
- (ii) Peripheral vascular disease
- (iii) Cerebro-vascular accidents

V. Other related issues:

- Epidemiology, Treatment and preventive aspects of vascular Complications
- Hypertension in diabetes
- Foot problems in Diabetes
- Diabetes and Pregnancy
- Sexual dysfunction in Diabetes
- Infections in Diabetes
- Skin and connective tissue disorders in Diabetes
- Bone and Joint problems in Diabetes.
- Diabetes and Surgery
- Dietetics in Diabetes
- Diabetes in special situations

VI. Prevention of Diabetes:

- Prevention of Type 1 and 2 Diabetes – current Strategies and Recent Trials.
- Primary prevention and critical research issues.

VII. General Topics:

- Research methodology
- Teaching methodology

6. Practicals:

- Diet exhibition and diet workshops - and well designed charts
- Diabetes - laboratory techniques - visiting diabetes laboratories
- Instrumental Diabetology - various instruments –Doppler, NCV, Biothesiometry, Sops Nerve Conduction Velocity, Pedometer, ECG, ECHO, Vascular laboratory techniques.
- Self Glucose Monitoring techniques, Insulin Infusion Pumps, CSII monitoring machines.
- Eye and diabetes - fundus examination and techniques (photocoagulation) demonstration
- Visiting connected specialty referral clinical services. Art of maintaining clinical case records and electronic case recording techniques
- Insulin, insulin syringes and Insulin pens - display and explanation
- A visit to intensive Coronary Care, the intensive medical care & EMS facilities
- Organisation of diabetes camps for public.

7. Framework of Training:

1. Basic Sciences (20% time) Immuno-genetics, Insulin resistance, Intermediary metabolism, Pathogenesis of micro-vascular and macro-vascular complications, and lipid disorders.
2. Clinical problem solving exercises (60% time) Problems in diagnosis, Screening for complications, Management issues, Drug interactions, Emergencies and Patient education. This may include clinical demonstrations, C.P.C. or other similar activity.
3. Related specialty interaction (20% time) Ophthalmic, Neurology, Nephrology, Surgery, Reproductive, Obstetric, Dermatological and Psychological and other areas including value added attendance at diabetes update meets and conferences.

4. Postings: 12 months in the Department of Diabetology including Special Postings in the Following Departments

- Intensive Medical Care Unit - 15days
- Cardiology department - 15days
- Nephrology department - 15days
- Neurology department - 15days
- General Medicine - 7 days
- Diabetic Foot Clinic - 15 days
- Ophthalmology - 7 days

Candidates will have to attend the Diabetology OP from 8 am to 10 am during the Special postings.

Course Coordinator: Professor of Diabetology

5. Attendance: 80% attendance as per the University regulations.
6. Seminars, journal clubs, bedside case discussion and reviews in diabetes and related illnesses.

7. Recent Advances in Diabetology.
8. Research methodology in diabetes.
9. Research conference at state level - 1
10. Research conference at national level - 1

8. Training Module:

- (i) Didactic Lectures: 1-2 / week, covering almost all chapters as in the RSSDI textbook
- (ii) Dissertation: 15 case histories - 1 Pregnancy & Diabetes, 1 Type 1, 5 peri-operative (varying specialties), 2 diabetic foot, 6 with complications (including emergencies)

9. Working hours:

To be decided by the Institute.

10. Log Book of daily activity with:

➤ **Outpatients:**

- 100 Type 2 Diabetes Mellitus cases including: Complications
- 10 Type1 Diabetes Mellitus
- 5 Gestational Diabetes Mellitus
- 5 Perioperative Diabetes Mellitus

➤ **Inpatients:**

Minimum 20 cases of Diabetes Mellitus

Minimum procedures /skills

Clinical bedside skills – Anthropometry including Waist

- Fundoscopy
 - Monofilament
 - Ankle Brachial index
 - Life support and resuscitative skills
 - Recording and interpreting an ECG
- Skills in dietetics – planning and constructing a diet chart for type2 Diabetes Mellitus, Type 1 Diabetes Mellitus, Diabetes Mellitus with Pregnancy, Diabetes Mellitus in special situations; inclusive of meal planning,
 - Skills in patient education: Type 2 Diabetes Mellitus, Type 1 Diabetes Mellitus.
 - Other skills:
Glucometer use Lab skills: -blood glucose, HbA1, C and Microalbumin

Log Book to be signed with evaluation weekly.

Minimum of 40 hrs a week / or 8 hrs /day.

11. Suggested Reference: Books & Journals:

1. Diabetes: Joslin's Diabetes Mellitus. 14 ed. 2005. RC660.J6 (Research). Kahn CR, et al.
2. RSSDI Text Book of Diabetes Mellitus Second Edition, 2007 BB Tripathy, HB Chandalia, AK Das, PV Rao, SV Madhu, V.Mohan
3. Conquest of Diabetes by Diet and Exercise by Dr. H.B. Chandalia and Ms. Sonal Modi
4. Diabetic Foot - A Clinical Atlas by Dr. Sharad Pendsey
5. Handbook of Nutrition and Diabetes Management by Prof. Sam G.P. Moses
6. A Handbook on Diabetes Mellitus by Prof. V. Seshiah.
7. Diabetes Mellitus by Prof. P.G. Raman
8. Practical Management of Diabetes Mellitus 2nd Edition by Dr. Sharad Pendsey.
9. Full Life with Diabetes by Dr. A.S. Godbole and Dr. S.A. Godbole

12. Suggested Indexed Journals:

- 1: Diabetes
- 2: Diabetes care
- 3: Diabetes & vascular disease research
- 4: Diabetes, obesity & metabolism
- 5: Diabetes, nutrition & metabolism
- 6 Current diabetes reports
- 7: Diabetes forecast
- 8: The Diabetes educator
- 10: Lancet
- 11: New England Journal of Medicine
- 12: Journal of Diabetes Research in Developing Countries (Indian)
- 13: Asian Journal of Diabetes (Indian.)