

Curriculum and Syllabus
for
Post Graduate Fellowship in Medical Oncology

Offered by
Dr B Borooah Cancer Institute (RCC)
Guwahati - 781016

PROPOSED COURSE: Fellowship in Medical and Pediatric Oncology

NUMBER OF SEATS: 2 (Two) per batch. (One: Gen., One: Sponsored).

REQUISITE QUALIFICATION: MD/DNB in Medicine or Pediatrics.

INTRODUCTION

'Medical Oncology' as a specialty has assumed immense importance. Institutes like, Rotary Cancer Hospital, AIIMS and Tata Memorial Hospital, Mumbai are amongst the few centers in India that provides the prestigious postgraduate super specialty course (DM) or post-graduate fellowship program in Medical Oncology. Facility for post-graduate super-specialty courses is non-existent in this part of the country. As is evident from the published reports of ICMR population based registry, incidence of cancer in the northeastern part of India is higher than many other parts of the country. Therefore, there is a need of medical oncologist in this region. Dr B Borooah Cancer Institute has got the entire necessary infrastructure which may be necessary to start a program of fellowship in medical and pediatric oncology. It will be important that the candidates interested in pursuing their career in medical oncology, besides a good clinical acumen, possess a sound understanding of the related basic sciences. They should be able to comprehend the essentials of molecular biology, genetics, signal transduction and immunology and translate the knowledge into clinical practice.

GOAL OF THE PROGRAM

To ensure adequate supply of medical oncology experts who assume leadership role in their fields.

AIMS OF THE PROGRAM

To produce a medical oncologist who:

1. is capable of providing an excellent patient care in the field of oncology
2. possesses adequate knowledge base (both basic and applied) to effectively interact with medical colleagues in a wide range of disciplines.
3. is a good researchers

OBJECTIVES AND GUIDELINES TO THE CONDUCT OF PROGRAM

It will be a two year course that imparts intense training to fellowship candidates into the field of medical and pediatric oncology and allied subjects with adequate exposure to clinical and laboratory based activities.

ADMISSION TO THE COURSE

As per Srimanta Sankardeva University of Health Sciences Rules.

CLINICAL TRAINING

The objectives of the clinical trainings are:

1. To develop clinical judgment and technical skills in diagnosis and the total management of patients with neoplastic diseases, with various modalities of treatment individually or in combination.
2. To make the student experts in handling all kinds of medical emergencies arising either due to cancer spread or problems related to therapy. The latter include: a)infections secondary to severe neutropenia, leading to respiratory distress/failure, renal insufficiency, hepatic insufficiency, and neurological disturbance, b)hemorrhagic complications, c)electrolyte disturbance, d)other toxicities.
3. To impart full knowledge concerning cancer chemotherapy, hormone therapy, biologics, gene therapy, immune therapy; their mechanism of action, side effects, mode of administration, inter relation with other drugs and their therapeutic effects.
4. To make the candidate familiar with all the modern diagnosis aids including ultrasound. CT scan, MRI, PET scans, mammography, endoscopy, and radionuclide scans.
5. To make the candidate conversant with the indications and application of blood component therapy, newer antibiotics, newer antifungal and antiviral agents and other supportive measures.
6. To make the candidate fully conversant with and trained in various aspects of high dose chemotherapy and stem cell transplantation (both allogenic and autologous) including schedule of treatment, indication for the use of growth factors, GVHD prophylaxis and management of various complications including acute and chronic GVHD.
7. To provide an insight into clinical trials (design, data collection, analysis and interpretation of related statistics), cancer epidemiology, preventive and community oncology.

8. To make the candidate understand the psychology of his patients, this is often disturbed with the knowledge that he or she has a cancer. The candidate will be made to learn to understand and tackle these psychological issues with compassion and gentle behavior.

9. To teach the candidate about effective communication skills and how to impart bad news to the patients.

10. To make them expert in managing the terminally ill patients. They would be given knowledge regarding pain management and other palliative care measures.

PROPOSED TRAINING PROGRAM

The candidate works in the department of medical oncology as following

A) INDOORS POSTING

This may vary from 6 to 8 months

The candidate is allotted certain beds and he is required to work up patients admitted on those beds. He/she plans out a diagnostic work up and treatment plan, discusses it with the concerned consultants, presents it on the grand rounds and assumes complete responsibility of the patients during their hospital stay. He/she should work in harmony with the ward nurses.

B) OUT PATIENT DEPARTMENT (OPD) POSTING

Duration is 12 months. The candidate is posted to **chemotherapy evaluation clinics** and various **specialty clinics** including *breast cancer, gastrointestinal, urology, lymphoma-leukemia, pain evaluation, bone and soft tissue, pediatric tumours, head and neck, gynecology oncology, pulmonary oncology.*

The candidates posted to these clinics work under the supervision of consultants. They are expected to see new as well as follow-up patients so as to plan out the management and assess the therapeutic responses of a particular patient.

C) DAY CARE AND OPD PROCEDURES (MINOR OT) POSTING

Duration is 2 months. During this posting a candidate is expected to learn skills.

- In introducing per cutaneous subclavian, internal jugular, and femoral vein catheters
- Familiarity with different venous access devices likes Hickman catheter, subcutaneous port etc.
- Institution of chemotherapy and supervision of side effects
- Procedures like bone marrow biopsy, liver biopsy, tru-cut biopsy, lumbar puncture, intrathecal chemotherapy and aspiration of fluids.

D) BMT UNIT POSTING

Duration is 2 months. The candidate works under the supervision of concerned consultants and assumes responsibility of managing the patients undergoing high dose chemotherapy.

The trainees will be sent to Tata Memorial Centre, Mumbai for this exposure.

E) ANCILLARY POSTING

It will be for 2 months as follows:

- Radiation oncology (2 weeks)
- Laboratory (4 weeks) (Clinical Haematology, Molecular & Cytogenetics)
- Palliative Care Clinic (1 week)
- Preventive Oncology (1 week)

Radiology + Nuclear Medicine

F) LABORATORY TRAINING

The candidate, apart from understanding the value of laboratory tests in a given malignancy must possess the basic knowledge of interpreting the laboratory data and correlating it with clinical data. For this purpose, candidate is posted in various laboratories through laboratory posting or dissertation topic.

- The candidates are posted to various laboratories, such as Histology, Immunohistochemistry, Molecular Biology laboratory. In addition, candidate is posted in immunology and microbiology laboratory.
- These postings enable the candidate to understand histopathology, immunopathology, histochemistry, cytopathology, genetics of tumours, their functional properties and modes of spread etc. He/she is also made familiar with the various types of stem cell mobilization, harvesting, and cryopreservation techniques (as part of BMT training).
- The candidate is required to learn the basic techniques of staining and study of peripheral/bone marrow smears, operation of blood cell counter and cell separator machine.

G) RESEARCH TRAINING

The candidate is introduced to the field of research in medical oncology; both at clinical and laboratory level.

The candidate is encouraged to work on and publish case series and case reports in peer reviewed journals and send papers for presentation to national and international conferences. He

also be encouraged to design new clinical as well as laboratory based protocols, to write research proposals for granting of funds and to establish new laboratory techniques.

The candidate will participate in all teaching activities, both intra departmental as well as interdepartmental like:

- a) Morning admission rounds
- b) Case presentations
- c) Ward grand rounds
- d) Clinic-pathological conferences
- e) Radiology rounds
- f) Morbidity and mortality meeting
- g) Joint tumour board meeting
- h) Journal clubs
- i) Seminars and Lectures

Log-book

It is mandatory for candidate to maintain a log-book during his/her entire tenure of training.

CONDITIONS FOR CERTIFICATION

The candidate will be guided and judged as regards his/her abilities to provide competent care to his patients through various means like ward rounds, discussions held in OPD/clinics and weekly academic activities. Internal assessment through internal examination held in March and September every year will be done and this record will be made available at the time of final examination.

BOARD OF EXAMINATION

^{Two} One internal and ^{Two} one external examiner.

Assessment of Candidate and evaluation:

- A) Internal assessment – this will be done at the end of each semester and will include theory, practical and evaluation of skills.
- B) Evaluation at the end of the course:

a) Theory Papers – comprises of three papers. → four papers.

Paper I – Basic and applied science

Paper II – Principles and practice of clinical oncology

Paper III – Recent advances related to oncology

b) Practical examination – comprises of long case, short cases and viva-voce.

1. Assessment of the three parts of the examination shall be done jointly by the members of the respective board of examiners.
2. Assessment of theory papers will be done individually by each examiner. The average of marks will be taken into consideration.
3. A candidate will be declared to have qualified for the fellowship program in medical oncology if the candidate has satisfied the members of the respective boards of examiners individually and collectively that he/she had an adequate knowledge in all aspects of the three parts of examination. The candidate is required to score at least 50% of marks in theory ^{papers} separately and 50% of marks in clinical and viva-voce examination ^{each} taken together. ^{separately}
4. The examination is conducted generally once a year in the months of May.

SYLLABUS

Paper I (Basic Science in Oncology)

1. Cell cycle
2. Pathology, Invasion & Metastasis
3. Angiogenesis
4. Etiology of cancer
 - a. Viral
 - b. Chemotherapy
 - c. Physical
 - d. Hormonal
5. Epidemiology of Cancer
6. Principles of cancer Management – Surgical Oncology, Radiation Therapy, Chemotherapy, Biologic therapy
7. Pharmacology of cancer Chemotherapy
8. Essentials of Molecular Biology
9. Molecular Biology of Cancer : Oncogenes
10. Cytogenetic
11. Cancer prevention; Tobacco related cancer; Diet & Risk reduction; Chemo preventive Agents; Hormones
12. Cancer Screening
13. Imaging Techniques of cancer diagnosis & Management
14. Specialized Techniques of cancer Diagnosis and management
15. Vascular Access and Specialized Techniques of drug delivery

Paper – II Clinical Oncology (Medical)

1. Cancer of Head and Neck
2. Cancer of Lung and Mediastinum
3. Cancer of Gastrointestinal Track
4. Cancer of Genito-urinary System
5. Cancer of the Breast
6. Cancer of Endocrine System
7. Sarcomas of Soft Tissues & Bone
8. Benign & Malignant Mesotheliomas
9. Cancer of Skin & Malignant Melanoma
10. Neoplasms of CNS
11. Gynaecological tumors
12. Peritoneal Carcinomatosis
13. Cancers of Childhood (solid tumors)
14. Para-neoplastic Syndromes
15. Cancers of unknown primary site
16. AIDS & other Immunosuppression related malignancies
17. Oncological Emergencies
18. Treatment of Metastatic cancers
19. Leukemia (including pediatric leukemia)
20. Lymphomas
21. Plasma cell disorders
22. Other Hematological malignancies
23. High Dose Chemotherapy and Transplantation
24. Bone Marrow dysfunction in cancer patient
25. Infections in cancer patients and neutropenic patients

Paper – III (Supportive care, Clinical Trials & Recent Advances in Oncology)

1. Adverse effects of treatment
2. Supportive care and quality of life
3. Rehabilitation of Cancer patients
4. Societal Issues in Oncology
5. Clinical Trials in oncology
6. Gene therapy
7. Cancer Immunotherapy
8. Nuclear medicine
9. Newer approaches in cancer treatment
10. Newer drugs in cancer treatment

11. Nanotechnology
12. Complimentary, Alternative and Integrative therapies in Oncology
13. Information systems in Oncology

RECOMMENDED PERIODICALS

Book

1. Cancer principles and practice of oncology
2. Principles and practice of pediatric oncology
3. Decision making in oncology
4. Current medical diagnosis and treatment
5. The basic science of oncology
6. Cancer treatment
7. Cancer chemotherapy
8. Principles of internal medicine
9. Text book of pediatrics
10. Text book of oncology

Editor

Vincent T. Devita
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 Bengamin Djubegovic
 Lange Medical Book International edition
 IanF. Tannock
 Charles M Haskel
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 Harrison
 Nelson
 Abelloff and Armitage

Journals

1. Cancer Treatment Review
2. Annals of Oncology
3. Journals Of Pediatric Hematology/Oncology
4. The Indian Journal Of Cancer
5. The Seminars In Oncology
6. Hamatology/Oncology Clinics Of North America
7. Cancer
8. Current Problems In Cancer
9. Journal Of Clinical Oncology
10. Lancet
11. NEJM (New England Journal Of Medicine)
12. Blood
13. British Journal Of Hematology
14. Bone Marrow Transplantation
15. Seminars In Hematology.

NAME OF THE FACULTIES

- Dr A.C. Kataki, MD, Director
- Dr B.B. Borthakur, MS, Medical Superintendent
- Dr C. Bhyuan, MD, Professor, Medical Oncology
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- Dr P. Deka, MD, Asst. Professor, Gynae Oncology

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