

SYLLABUS

DM in Medical Oncology

Dr. Bhubaneswar Borooh Cancer Institute

(Regional Cancer Centre)

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DR B BOROOAH CANCER INSTITUTE, GUWAHATI

DEPT OF MEDICAL & PAEDIATRIC ONCOLOGY

DM – MEDICAL ONCOLOGY PROGRAM

INTRODUCTION:

'Medical Oncology' as a specialty has assumed immense importance. Institute 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 Medical Oncology. Facility for DM- Medical Oncology 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 not all the necessary infrastructure which may be necessary to start a program of DM-Medical 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.
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 researcher.
4. Is a competent teacher.

OBJECTIVES AND GUIDELINES TO THE CONDUCT OF PROGRAM

It will be a 3 year course that imparts intense training to DM candidates into the field of medical oncology and allied subjects with adequate exposure to clinical and laboratory based activities.

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.

GUIDELINES:

The candidate works in the department of medical oncology as following.

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.

OUT PATIENT DEPARTMENT (OPD) POSTING:

Duration is 18 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.

DAY CARE AND OPD PROCEDURES (MINOR) POSTING:

Duration is 3 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, intra-thecal chemotherapy and aspiration of fluids.

BMT UNIT POSTING:

Duration is 3 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.

ELECTIVE POSTING:

It is for one month. The candidate selects the area of his or her interest; it may be training within the institute or at other specialized centers within or outside India. The candidate is required to seek acceptance from the concerned departments / centers where he wishes to work and also permission from the Head of the Institute.

ANCILLARY POSTING:

It will be for 3 months as follows:

- Surgical Oncology (2 weeks)
- Radiation Oncology (2 weeks)
- Laboratory (4 weeks) (clinical Haematology, Molecular & Cytogenetics)
- Rotation to blood bank (1 week)
- Laboratory (4 weeks) (Clinical Haematology, Molecular & Cytogenetics)
- Rotation to blood bank (1 week)
- Palliative Care Clinic (2 weeks)
- Preventive Oncology (1 week)

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 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.

RESEARCH TRAINING:

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

DISSERTATION:

The candidate is required to work on **2 projects (clinical and laboratory based)**. The research proposals are to be submitted within 6 months of joining the course and completed report 6 months before the final exam. Every 6 months the candidate should present the progress report on the thesis work.

The candidate can either design a prospective study or do retrospective analysis related to his thesis work. The candidate should see to it that the study is published in a national or international journal.

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

TRAINING ORIENTED TOWARDS MAKING THE CANDIDATE AN EXPERT TEACHER

Academic schedule

Integrated teaching program to expose the candidate to various fields of oncology are provided by regular clinic-pathologic conferences, seminars, case discussion session, and radiology conferences. Following academic activities are planned throughout the year except during vacations. The candidate will be encouraged to actively participate in these meetings, carefully listen to the topics, ask questions, critically analyze and given his / her comments and suggestions.

Monday	:	Teaching program (Faculty)
Tuesday	:	Radiology meet & Oncopathology meet (on alternate week)
Wednesday	:	Journal presentation.
Thursday	:	Seminar
Friday	:	Project presentation / discussion.

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.

EXAMINATION:

The examination will be conducted in four parts.

1. Theory paper.

Paper – I

Basic science in oncology: Tumor Biology, Biochemistry, Biometry, Cancer Epidemiology, Immunology, Pharmacology, Radiation physics, Nuclear Medicine.

Paper – II

Medical Oncology of Solid tumours including pediatric solid tumours.

Paper – III

Hemato-oncology and bone marrow transplantation.

Paper – IV

Supportive Care, Rehabilitation, Terminal care, Clinical Trials, Cancer Prevention and Screening, Recent advances in Oncology Drugs and treatment approaches.

2. Clinical and practical

Long case 1

Short cases 2

Spotters 4

3. Viva-voce

Grand viva, Histopathology, Hematology slides, Drugs, CT scans and X-rays.

BOARD OF EXAMINATION:

Two internal and two external examiners.

Assessment of Candidate.

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 DM degree 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 separately and 50% of marks in clinical and viva-voce examination taken together.
4. A candidate whose thesis/research work has not been approved or who is unsuccessful in any part of the examination will be followed up as per institute rules.
5. The examination is conducted generally twice a year in the months of May and December.

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. Sarcoma of Soft Tissues & Bone
8. Benign & Malignant Mesotheliomas
9. Cancer of Skin & Malignant Melanoma
10. Neoplasms of CNS
11. Gynaecological tumours
12. Peritoneal Carcinomatosis
13. Cancers of Childhood (solid tumours)
14. Paraneoplastic syndromes
15. Cancers of unknown primary site.
16. AIDS & other Immunosuppression related malignancies.
17. Oncological Emergencies.
18. Treatment of Metastatic cancers.

Paper - III (Haemato-oncology)

1. Leukemia (including pediatric leukemia)
2. Lymphomas
3. Plasma cell disorders
4. Other Haematological malignancies.
5. High Dose Chemotherapy and Transplantation
6. Bone Marrow dysfunction in cancer patient
7. Infections in cancer patients and neutropenic patients.

Paper - IV (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

Periodicals Recommended:

<u>Book</u>	<u>Editor</u>
1. Cancer principles and practice of oncology	Vincent T. Devita
2. Principles and practice of pediatric oncology Philip	A. Pizzo
3. Decision making in oncology	Bengamin Djubegovic
4. Current medical diagnosis and treatment	Lange Medical Book International edition
5. The basic science of oncology	Ian F. Tannock
6. Cancer treatment	Charles M Haskel
7. Cancer Chemotherapy	Chabner
8. Principles of internal Medicine	Harrison
9. Text book of paediatrics	Nelson
10. Text book of oncology	Abelloff and Armitage

4. Societal Issues in Oncology
5. Clinical Trials in oncology.
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JOURNALS:

1. Cancer Treatment Review
2. Annals of Oncology
3. Journals of Paediatric Hematology / Oncology
4. The Indian Journal of Cancer
5. The Seminars in Oncology
6. Haematology /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 Haematology
14. Bone Marrow Transplantation
15. Seminars in Hematology.

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