Curriculum for Post Doctoral Certificate Course (PDCC) Program in Oncoanaesthesia and OncoCritical Care

Department of Anaesthesiology and Critical Care

ALL INDIA INSTITUTE OF MEDICAL SCIENCES, NAGPUR

COMPETENCY BASED POSTGRADUATE TRAINING PROGRAMME

FOR

POST DOCTORAL CERTIFICATE COURSE IN ONCOANAESTHESIA AND ONCO-CRITICAL CARE (PDCC)

AT

AIIMS NAGPUR

At AIIMS Nagpur

Department of Anesthesiology is catering perioperative care to patients from surgical specialties like General surgery, Gastro surgery, Gynaecology, ENT, Surgical oncology, Orthopedic surgery, Urology, Pediatric surgery, Cardio-thoracic surgery and Neurosurgery. None of these fields are devoid of oncology patients. Recently with the start of brachytheraphy and pain medicine we are in a position to increase our care towards oncological patients. Thus it is a need of the hour to start a specialised course in Onco-anaesthesiology with an aim to improve patient care.

1.GOALS

The goals of training candidates selected for the Onco-anaesthesiology Fellowship Programme is to facilitate the development of knowledge, attitude and skills necessary to provide advanced peri-operative care for oncology patients.

2.OBJECTIVE:

To provide an intense, structured training program for post MD/DNB (Anesthesia) candidates, to enhance quality of anesthetic management in Oncoanaesthesiology and oncocritical care.

Objectives of One-Year Training Program in Oncoanaesthesiology and oncocritical care.

3. **PROGRAM OUTCOMES:**

1. COGNITIVE DOMAIN:

These outcomes outline the cognitive skills and knowledge areas that fellows in onco-anaesthesiology should aim to achieve, preparing them to deliver high-quality care in this specialized field.

1.1. Knowledge Acquisition:

1.1.1. Identify and describe the pathophysiology of various types of cancers and their implications for anaesthesia management.

1.1.2. Explain the principles of pharmacokinetics and pharmacodynamics of anaesthesia drugs in cancer patients, considering their altered physiology.

1.1.3. Summarize the latest evidence-based practices in perioperative management of cancer patients, including pain management strategies.

1.2. Critical Thinking:

1.2.1. Evaluate and integrate complex clinical data to formulate an anaesthetic plan tailored to individual cancer patients.

1.2.2. Analyse potential risks and benefits of different anaesthetic techniques and drugs in oncology cases, considering comorbidities and tumour characteristics.

1.2.3. Critique research literature and apply findings to optimize anaesthesia care in cancer surgery.

1.3. Problem Solving:

1.3.1. Develop and implement strategies to manage intraoperative challenges specific to oncology patients, such as hemodynamic instability or drug interactions.

1.3.2. Propose alternative anaesthetic approaches for patients with chemotherapy-induced organ dysfunction or immunosuppression.

1.3.3. Resolve ethical dilemmas related to pain management and end-of-life care in oncology anaesthesia.

1.4. Synthesis and Application:

1.4.1. Synthesize knowledge from multiple disciplines (oncology, anaesthesiology, pharmacology) to provide comprehensive perioperative care for cancer patients.

1.4.2. Apply advanced monitoring techniques and technology to monitor and manage anaesthesia in oncology cases.

1.4.3. Design and execute a research project related to onco-anaesthesiology, demonstrating the ability to contribute to the field through scholarly activity

2. AFFECTIVE DOMAIN:

These outcomes outline the cognitive skills and knowledge areas that fellows in onco-anaesthesiology should aim to achieve, preparing them to deliver high-quality care in this specialized field.

2.1. Knowledge Acquisition:

2.1.1. Identify and describe the pathophysiology of various types of cancers and their implications for anaesthesia management.

2.1.2. Explain the principles of pharmacokinetics and pharmacodynamics of anaesthesia drugs in cancer patients, considering their altered physiology.

2.1.3. Summarize the latest evidence-based practices in perioperative management of cancer patients, including pain management strategies.

2.2. Critical Thinking:

2.2.1. Evaluate and integrate complex clinical data to formulate an anaesthetic plan tailored to individual cancer patients.

2.2.2. Critique research literature and apply findings to optimize anaesthesia care in cancer surgery.

2.3. Problem Solving:

2.3.1. Develop and implement strategies to manage intraoperative challenges specific to oncology patients, such as hemodynamic instability or drug interactions.

2.3.2. Critique research literature and apply findings to optimize anaesthesia care in cancer surgery.

2.3.3. Resolve ethical dilemmas related to pain management and end-of-life care in oncology anaesthesia.

2.4. Synthesis and Application:

Synthesize knowledge from multiple disciplines (oncology, anaesthesiology, pharmacology) to provide comprehensive perioperative care for cancer patients.

3. PSYCHOMOTOR DOMAIN: Designing program outcomes in the psychomotor domain for a fellowship in onco-anaesthesiology involves specifying the technical and procedural skills that fellows should acquire and master through hands-on training and clinical experience. Here are some suggested program outcomes in the psychomotor domain:

3.1. Airway Management:

3.1.1. Perform advanced airway management techniques (Percutaneous tracheostomy, tracheostomy, submental intubation) in cancer patients, including difficult airway scenarios and those with anatomical variations due to tumors.

3.1.2. Perform advanced airway management techniques (Percutaneous tracheostomy, tracheostomy, submental intubation) in cancer patients, including difficult airway scenarios and those with anatomical variations due to tumors.

3.2. Regional Anesthesia Techniques:

3.2.1. Master ultrasound-guided regional anaesthesia techniques for perioperative pain management in cancer surgeries, considering anatomical changes and nerve involvement.

3.2.2. Administer regional blocks safely and effectively, optimizing pain control while minimizing systemic side effects.

3.3. Invasive Monitoring:

3.3.1. Competently insert and manage invasive monitoring devices (e.g., arterial lines, central venous catheters) in cancer patients undergoing complex surgeries.Interpret hemodynamic parameters and adjust anaesthesia accordingly to maintain optimal cardiovascular stability.

3.4. Anaesthetic Administration:

3.4.1. Administer general and regional anaesthesia agents tailored to cancer patients, considering pharmacokinetic and pharmacodynamic alterations due to oncological treatments.

3.5. Pain Management Interventions:

3.5.1. Perform advanced techniques for acute and chronic pain management in cancer patients, including epidural analgesia, patient-controlled analgesia (PCA), and nerve blocks.

3.5.2. Evaluate and adjust pain management plans based on patient response and clinical outcomes

3.6. Emergency Situations:

3.6.1. Manage intraoperative emergencies specific to cancer patients, such as malignant hyperthermia, anaphylaxis, and massive hemorrhage.

3.6.2. Demonstrate proficiency in initiating and leading resuscitative efforts in collaboration with the surgical team and other healthcare providers.

3.7. Technical Skills in Palliative Care Settings:

3.7.1. Develop technical skills related to pain management and symptom control in palliative care settings, including the use of nerve blocks and intrathecal drug delivery systems.

3.7.2. Collaborate with palliative care teams to optimize comfort and quality of life for patients with advanced cancer.

3.7.3. Mastery of these skills prepares fellows to handle the complexities and challenges specific to onco-anaesthesiology, contributing to improved patient outcomes and safety.

4. SELECTION CRITERIA

1. Post MD/DNB in Anaesthesiology from a university recognized by MCI/NMC or equivalent degree.

5. SELECTION METHOD:

- 25 Marks MCQ Test based on Oncoanaesthesiology and oncocritical care
- 25 MCQs of 1 mark each
- No Negative Marking.
- Merit list will be displayed for eligibility

6. **FEES**: As per institutional policy

7. DURATION OF THE PROGRAM:

The course of the study shall be for a period of one year consisting of two terms of six months each.

8. **NUMBER OF STUDENTS**: As decided by institution.

9. INFRASTRUCTURE:

Oncoaanesthesia serves a vast range of departments. Almost all surgical specialities are functional with adequate manpower.
A fully functional speciality O.T, SICU, functional department of radiotheraphy, functional radiology department with CT & MRI facility round the clock.

10. CONTRIBUTING DEPARTMENTS:

Department of Anesthesiology & Critical Care, AIIMS Nagpur	Department of Gastrosurgery, AIIMS Nagpur
Department of Surgical oncology, AIIMS Nagpur	Department of Neurosurgery, AIIMS Nagpur
Department of General surgery, AIIMS Nagpur	Department of Urology, AIIMS Nagpur
Department of Radiotheraphy, AIIMS Nagpur	Department of Gynaecology, AIIMS Nagpur

11. MEDIUM OF INSTRUCTION:

The medium of instruction and examination shall be English.

12. SYLLABUS:

1. Introduction/ orientation

- Organization and functioning of operating theatres
- Hospital electronic medical record system
- Pre-anaesthesia evaluation
- Patient assessment in Post-anaesthesia care unit
- Vasoactive drugs, dosage, infusion preparation
- Establishment of advanced haemodynamic monitoring
- Epidural dosage, infusion preparation
- Preparation and administration of patient controlled analgesia pumps.
- Basic Principles of Medical, Surgical and Radiation Oncology

2. Transfusion medicine
    - Preoperative evaluation& intraoperative management.
    - Managing massive transfusion/TRALI
3. Anaesthesia for endoscopic procedures.
    - Endoscopic ultrasound guided procedures
    - Endoscopic sinus surgery
    - Endobronchoscopic ultrasound guided procedures
    - Rigid scopy and Microlarygneal excision
4. Anaesthesia for Gastro-intestinal oncological surgery
    - Gastro-intestinal and hepatico-pancreatico-biliary (HPB) anatomy
    - Introduction to colorectal surgery: Anaesthetic considerations
    - Introduction to hepato-pancreatico-biliary surgery- Anaesthetic considerations
    - Physiology of gastrectomy and gastric bypass
    - Oesophagectomy: approaches and anaesthetic considerations.
    - Minimally invasive surgery-anaesthetic considerations
    - Fluid management for major colorectal surgery
    - Fluid management for major HPB surgery
    - Advanced haemodynamic monitoring for major HPB surgery
5. Anaesthesia for Gynec-oncological surgery
    - Physiology and anatomy of Gynec-oncology
    - Anaesthetic considerations in gynaec-onco surgery
    - Perioperative considerations for debulking and cytoreductive surgery
    - DVT prophylaxis- mechanical and pharmacologic methods

6. Anaesthesia for uro-oncological surgery
    - Pheochromocytoma: pre-operative preparation and intra-operative management
    - Anaesthetic management of Endo urology
    - Anaesthetic management for laparoscopic uro-oncological surgeries
    - Perioperative management of major radical uro-surgical procedure
7. Anaesthesia for breast and plastic surgery
    - Management of LD flap and TRAM flap surgeries- Anaesthetic considerations
    - Lower limb nerve blocks- sono-anatomy
    - Upper limb nerve blocks- sono-anatomy
8. Anaesthesia for head and neck oncological surgery:
    - Anaesthesia for neck dissections
    - Head and neck free flap reconstructions- anaesthetic considerations
    - Difficult airway management- algorithms
9. Anaesthesia for thoracic oncological surgery
    - One lung ventilation- physiology
    - Introduction to double lumen tubes and bronchial blockers
    - Introduction to fibreoptic bronchoscopy
10. Anaesthesia for Neuro oncology
    - Anterior cranial fossa tumour excision
    - Posterior cranial fossa surgery
    - Surgery with navigation and motor and sensory evoked potential monitoring
    - Awake craniotomy
11. Acute pain service
    - Introduction to APS
    - Patient controlled analgesia: machines, drugs, regimes
    - Patient controlled epidural analgesia
    - Post-operative epidural analgesia: trouble shooting
    - Continuous nerve block catheters- management
12. Chronic pain management
    - Pharmacological management of chronic pain: the WHO ladder

- Interventions in cancer pain

13. Onco-critical Care
    - Design and Organization of Oncology ICU
    - Post-operative ventilation aims and Indications
    - Mechanical Ventilation in Critically Ill Cancer Patient
    - Weaning from ventilation: strategies
    - VAP and VAP bundle
    - Role of Point of Care Ultrasound in Oncocritical Care Unit
    - CLABSI: Incidence, prevention and management
    - Fungal infections in ICU
    - Nutrition in Oncology ICU
    - Sepsis in Cancer Patient
    - Neutropenic sepsis: incidence and management
    - Management of Oncologic Emergencies
    - Critical Care Management in a Patient of CRS and HIPEC
    - Palliative care:
        i. Basic principles
        ii. Symptom management
        iii. Psychosocial/ spiritual issues l management
        iv. Emergencies in Palliative care

13. TEACHING METHODOLOGIES AND DUTIES

Sr No	Teaching/Learning Activity	Frequency
1.	Clinical Case presentation	Once a fortnight
2.	Clinical grand rounds	Once a fortnight
3.	Operative procedure perioperative planning and discussion	Before every case
4.	Journal Club	Once a fortnight
5.	Seminars/Webinars	Once a fortnight
6.	Oncosurgeon/ radiotheraphy/oncologist	Once a fortnight
7.	Mortality and Morbidity meets – Dept Audit	Once a month
8.	Research review	Once

14. THE TRAINING PATH AND CLINICAL POSTING:

TENTATIVE SCHEDULE FOR TRAINING:

*ROTATION POSTINGS TO THE FOLLOWING SPECIALTIES/AREAS

Sr no	Speciality	Duration	Learning Objectives
1.	Surgical Oncology, Gastrosurgery	5 months	Grasp the basic principles of onco-anaesthesia. Understand common cancer-related complications and their anaesthetic implications. Understand anaesthetic considerations for gastrointestinal, hepatic and pancreatic surgeries.
2.	General Surgery	1 month	Gain expertise in lung isolation techniques. Manage patients with renal cancers and pleural diseases.
3.	Gynaecologic Oncology	1 month	Learn anaesthetic techniques for mastectomies & gynaecologic surgeries. Understand the specific concerns related to breast and reproductive organ cancers.
4.	Palliative Care and Pain Management	1 month	Gain skills in managing chronic cancer pain. Understand principles of palliative care and end-of-life care
5.	Neurosurgery	1 month	Learn cerebral physiology. Management of intraoperative and postoperative intracranial lesions
6.	Urology	1 month	Learn about perioperative care for patients undergoing kidney tumours and renal transplant
7.	Super-Speciality ICU	1 month	Learn about postoperative management of oncology patients Learn about management of oncological emergencies

8.	NORA, Research and Academics	15 days	Learn anaesthetic techniques for brachytherapy, MRI Engage in research projects related to onco-anaesthesiology. Learn about academic writing, presentations, and teaching methodologies.
9.	ENT (Microlaryngeal surgeries)	15 days	Grasp airway management in complex surgeries. Understand implications of surgeries involving larynx, pharynx, and oral cavity.

Every candidate shall maintain a Logbook/work dairy and record his/her participation in the training programs conducted by the department such as journal reviews, seminars, etc. The Logbook shall be scrutinized and certified by the Head of the Department and Head of the Institution and presented during practical/clinical examination.

15. RESEARCH PROJECT:

- One clinical study, preferably prospective or audit should be conducted during the training period.
- Student should present at least 1 oral/poster in national / international conference.

16. ATTENDANCE:

- Every Candidate should have attendance of at least (80 %) in clinical work and of the total number of classes conducted in a calendar year from date of commencement of the term to the last working day as notified by the Institution. A candidate lacking in prescribed percentage of attendance will not be eligible to appear for the final Examination.

17. SCHEME OF EXAMINATION:

1. Formative Assessment :

• One month prior to summative exam and pattern is as summative exam.

2. Summative Examination: -

• Theory Paper of 50 Marks

MCQs	20 x 1 = 20 Marks
Short Notes:	4 x 5 Marks each = 20 Marks
LAQ:	1 x 10 Marks = 10 Marks

• Practicals of 50 Mark

Case 1	15 marks
Case 2	15 marks
Table viva Instruments Drugs ABG X Ray	20 marks total 5 marks 5 marks 5 marks 5 marks
Total	50 marks

SIX MONTHLY PROGRESS REPORT:

- Six monthly progress report will be submitted to the academic section in the prescribed format, signed by the head of the department on 7thJanuary and 7th July.

ELIGIBILITY TO APPEAR FOR SUMMATIVE EXAM: -

40% Marks in formative exam separately in Theory & Practical

75% Attendance

18. PASSING CRITERIA:

For certification the Qualifying marks will be 50% Marks Separately in Theory & Practicals in the Summative exam.

Repeat Summative Exam in 45 Days after results if not cleared

19. AWARD OF FELLOWSHIP:

Candidates who fulfil the requirements mentioned above shall be eligible for the award of fellowship.

19. LIST OF BOOKS:

1. A Complete Guide to Onco-Anaesthesia, Critical Care and Cancer Pain
2. Acute Pain Management; Scientific evidence by Australian and New Zealand College of Anaesthetists and Faculty of Onco-anaesthesiology
3. Atlas of ultrasound guided procedures in regional anaesthesia
4. Cancer Pain: Assessment and Management by Bruera 2nd edition
5. Textbook of Onco-Anesthesiology by Springer publication
6. Hadzic's Peripheral Nerve Blocks and Anatomy for Ultrasound-Guided Regional Anesthesia
7. Atlas of Image-Guided Interventions in regional anaesthesia
8. Anesthesiology by Miller
9. Clinical Anesthesiology by Morgan
10. Physics for Anesthetists by Sir Robert Macintosh
11. Regional Anaesthesia: Moore
12. Neural Blockade in Pain Management: Cousins
13. Onco-critical Care- An Evidence-based Approach
LIST OF JOURNALS:
1. European Journal of Cancer Care
2. Indian Journal of Palliative Care

3. International Journal of Palliative Care Palliative Care: Research and Treatment
4. The Internet Journal of Pain, Symptom Control and Palliative Care Onco-anaesthesiology
5. Pain Practice
6. Journal of Pain & Palliative Care Pharmacotherapy
7. Journal of Palliative Care
8. Journal of Palliative Care & Medicine
9. Indian Journal of Anaesthesia
10. Journal of Anaesthesiology and Clinical pharmacology
11. American Journal of Hospice and Palliative Care
12. British Journal of Anaesthesia
13. Anesthesia and Analgesia
14. Anesthesiology
15. Anaesthesia and Intensive Care
16. Canadian Anaesthesia Society Journal
17. Acta Anaesthesia Scandinavia
18. Regional Anesthesia and Onco-anaesthesiology
19. Journal of Palliative care
20. British Medical Journal
21. Quality Assurance meeting
22. Radiology conferences

PROFORMA

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