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IACTA Fellowship in Paediatric Cardiac Anaesthesiology

FIACTA (Paed)

Course Curriculum, Syllabus, Examination pattern

Indian College of Cardiac Anaesthesia (ICCA)

(Academic body under the aegis of Indian Association of Cardiovascular Thoracic
Anaesthesiologists-IACTA)

One of the objectives of IACTA / ICCA has been to promote education and training in the field of cardiac anaesthesia. There is an increase in the incidence of children born with heart diseases in India due to various environmental, genetic mutations, familial and other multiple factors apart from high population growth. Many new born children are surviving immediately after birth with congenital heart diseases due to early diagnosis and improved connectivity to hospitals, increased awareness among the people and improved treatment.

The increase in number of paediatric cardiac surgeries needs proportionate number of anaesthesiologists focused to paediatric cardiac anesthesia and intensive care. Many cardiologists and cardiac surgeons are dedicated to congenital cardiac patients care. Some centres are opening operation rooms specific for paediatric cardiac surgery. Various states and central Governments of India are introducing programs for children suffering from heart diseases. IACTA/ICCA has recognized the need of a Paediatric Cardiac Anaesthesia Fellowship in filling the shortage of trained, skilled and educated paediatric cardiac anaesthesiologists in our country.

Through one year fellowship program, centers accredited by ICCA will be able to give focused training in the field of paediatric cardiac anaesthesiology including perioperative echocardiography (Transesophageal, Epicardial and Transthoracic echocardiography), paediatric regional anaesthesia, and postoperative paediatric ICU care. Thus the twelve months Fellowship in Paediatric Cardiac Anesthesia is designed as a comprehensive educational and clinical training program to provide graduates the clinical expertise, scholarly & research experience, team leadership skills, and supervisory proficiency expected of consultants and leaders in the field of paediatric cardiac anaesthesiology.

Duration of Fellowship: 1year

Eligibility: a) MD/ DNB degree in Anaesthesiology + FIACTA or FNB or Two year work experience in Cardiac Anaesthesia.

b) Those who have passed 3 year DM/DNB Cardiac anaesthesia can apply directly for FIACTA(Paed) examination by paying the examination and registration fee.

Hospital / Institute for conducting the Fellowship: Accredited by ICCA/IACTA

Course: Theoretical knowledge and practical skills of Paediatric Cardiac Anaesthesia & Intensive Care

Goals and Objectives of FIACTA(Paed)

1. To produce qualified Paediatric Cardiac Anaesthesiologists with the expertise to manage paediatric patients undergoing cardiac surgery. To impart knowledge and skill in the field including the postoperative intensive care management of paediatric cardiac surgical patients.
2. To impart knowledge related to the conduct of cardiopulmonary bypass and the pharmacokinetics and pharmacodynamics during cardiopulmonary bypass.
3. To impart knowledge and skills related to the anaesthetic management of paediatric patients undergoing various procedures in the cardiac catheterization laboratory.
4. To impart knowledge and skills to perform transesophageal, epicardial and transthoracic echocardiography in paediatric cardiac surgical patients.
5. To impart the knowledge and skill to perform the procedures such as bronchoscopy and regional analgesia.
6. To impart knowledge and skills for conducting a scientific inquiry and provide orientation to the principles of research methodology and epidemiology.
7. To impart knowledge related to the setting up of an independent paediatric cardiac anaesthesia unit catering to cardiac surgery and intensive care unit and catheterization laboratory.
8. To impart attitude and communication skills to function as an efficient team leader and a member.
9. To impart attitude and communication skills to deal with children and their relatives.

Syllabus

I. Basic sciences of congenital heart diseases

A. Anatomy:

- Basic and correlative cardiac, thoracic and vascular anatomy
- Embryological development of normal heart, great vessels and thoracic structures
- Embryology of congenital cardiac lesions

B. Pathophysiology:

- Cyanotic and acyanotic cardiac diseases
- Congenital vascular diseases

C. Pharmacology:

- Basic and correlative pharmacology of drugs acting on heart, lung, vasculature and other vital organs.
- Pharmacological principles of anaesthetic drugs
- Indications and the rational use of anaesthetic drugs in cyanotic and acyanotic patients

D. Microbiology:

- Infections following paediatric cardiac surgeries
- Nosocomial infections in ICU and VAP infections
- Paediatric Sepsis management protocols
- Guidelines and recommendations to prevent infections

E. Cardiovascular Engineering:

- Material in cardiovascular application and biocompatibility
- Principles and Mechanics of Paediatric cardiopulmonary bypass circuit
- Paediatric ECMO circuit

F. Perioperative Monitoring:

- Hemodynamic monitoring
- Respiratory monitoring
- Neurological monitoring (BIS, NIRS)
- Coagulation monitoring (Activated clotting time, Thromboelastography etc)
- Transesophageal, Trans thoracic & Epicardial Echocardiography,

G. Ventilatory Therapy

- Newer modes of ventilation (invasive & non-invasive HFOV, SIMV-HFOV, high flow oxygen therapy, nitric oxide ventilation)
- Principles of ventilator therapy in neonates

- Difficult weaning from ventilator
- Tracheostomy management

II. Clinical sciences

- Clinical features, diagnostic aspects, therapeutic strategies, principles of perioperative care, anaesthesia management and surgical principles in congenital heart disease patients subjected to corrective or palliative surgery.
- Postoperative intensive care of paediatric patients following cardiothoracic and vascular surgery: vital organ care, homeostasis, management of surgical bleeding, ventilatory therapy, invasive and non-invasive monitoring, nutrition, management of postoperative infections, management of medical emergencies, transportation of critically ill babies, physiotherapy and nursing care.
- Anaesthetic management of paediatric patients subjected to cardiac investigations and therapeutic procedures in cardiac catheter laboratories and radiology suites.

III. Training in Echocardiography

- Principles of ultrasound and knobology
- Understanding the echocardiographic anatomy of congenital cardiac lesion
- Evaluation of complex congenital heart diseases by transesophageal echocardiography
- Perioperative TEE or Epicardial echo guided surgical decision making
- Postoperative cardiac evaluation by transthoracic echocardiography in guiding inotropes and fluid therapy

IV. Regional Analgesia Techniques

Training for performing regional block for perioperative analgesia (ultrasound and landmark based)

- Caudal block
- Bilateral paravertebral block
- Regional nerve blocks (parasternal, erector spinae)

V. Ultrasound Scanning

- Perioperative vascular access
- Diagnosing lung pathologies in ICUs
- Diagnosing diaphragmatic palsy in postop cases
- Transcranial doppler to evaluate middle cerebral artery flow in ICUs

VI. Cardiac Imaging and Cardiac Intervention

- Interpretation of cardiac CT, CT angiogram and CT perfusion
- Interpretation of MRI and MR angiogram
- Conventional angiogram techniques
- Interpretation of cardiac catheterization reports

Training Methods

During the period of fellowship a gradually increasing responsibility (initially under supervision) is given to the candidate so that he/she acquires enough experience to manage simple day to day operations and their intensive care management independently.

The work of the candidate shall be supervised on a day to day basis by the consultants / faculty of the division. His posting should be regulated in such a way that he gets enough exposure to the various types of surgical procedures, monitoring techniques, postoperative intensive care, catheterization laboratory procedures, and other related clinical areas as defined in this curriculum. In addition, the candidate shall be exposed to clinical demonstrations, seminars, workshops, and journal club.

Major components of Curriculum shall be

- Theoretical knowledge
- Practical/ clinical skills
- Communication skills and attitude
- Training in research, presentations, publications

<i>Activity</i>	<i>Periodicity</i>	<i>Method</i>
Journal clubs	Bi monthly	Faculty and Peer review
Seminars	Bi monthly	Faculty and Peer review
Theory Knowledge	Six monthly	Written tests

Clinical performance	Six monthly	Clinical exam
Procedures	Monthly	Log book
Research & Presentation	Six monthly	Logbook & Faculty peer view

Monthly Teaching Program

The following teaching programme is prescribed for the course:

Didactic lectures : 2-3 days/week

Seminars : Once every alternate week

Journal Club : Once every alternate week

Paediatric Cardiology Cath Meeting: Once a month

Bed side case discussion : Once a week

Morbidity and Mortality meeting : Once in two months

Posting Schedule

- a) 8 months in Paediatric Operation Theatre
- b) 2 months in Paediatric ICU + Neonatal ICU
- c) 2 months (6 weeks in Cardiac Imaging include cath lab, CT scan, echocardiography and radiology lab and OPD + 2 weeks- leave (including research, paper presentation/ publication)

Complete duration to be divided in to two halves (two terms)

1st term: a) 4 months OT then b)1 months ICU and c) 1 month Cath lab+CT/MRI, Echo including 1wk leave-research work etc.

Same will be repeated again in the **second term** so that the candidate will have better understating.

FIACTA(Paed) Registration of Candidates

To be eligible for this fellowship, the candidate must present evidence of following minimum requirements:

1. Candidates need to apply to the recognized FIACTA(Paed) centers of their choice directly and then register for the course with ICCA
2. The course of study shall be for a period of 1 academic year
3. The list of FIACTA(Paed) centers and their contact details are put up on the IACTA website or can be found out from the ICCA / IACTA office
4. The FIACTA(Paed) recognized center should appoint the candidate based on the interview to be trained under the FIACTA(Paed) certified teacher
5. The candidate needs to fill up the FIACTA(Paed) registration form upon joining the course and mail it to the ICCA office. The form can be downloaded from the IACTA website: www.iacta.co.in
6. The fee for registration for FIACTA(Paed) course is Rs 10,000. This should be paid to the ICCA office at the time of enrolment. Further, the candidate will have to pay the examination fee of Rs 10,000 at the time of applying for the examination. Those who have passed 3 year DM /DNB Cardiac Anaesthesia can apply directly for FIACTA(Paed) examination by paying the examination fee of Rs 10000 with a registration fee of only Rs 2000. Centralized examination will be conducted in August-September every year in a city for all candidates by ICCA.
7. Candidate must become a life member of IACTA. Membership form is available in IACTA website
8. Fee can be remitted as demand draft/cheque/cash/NEFT. The details are available on the website. The FIACTA registration form and the fee should reach the ICCA office before 30th September every year
9. The candidates shall be paid a salary/stipend as per the rules of the institute/hospital where they are appointed. This should not be different from the salary/stipend that is paid to any other similarly qualified employees (senior residents) of that institute/hospital

10. No hospital, institute or individual may levy any direct or indirect fee to a candidate in relation to the FIACTA(Paed) course
11. Appointment letter from the institute/hospital with the candidate's details should also be mailed to the ICCA office.
12. Advertisement for applications, appointments and registrations for the course must be completed before 30th September every year
13. A recognized FIACTA(Paed) center should be doing a minimum of 200 paediatric cardiac surgeries of good case mix and have FIACTA(Paed) faculty

List of procedures to be performed

Procedure	Under Supervision	Independently
Radial / Femoral Arterial Cannulation	10	50
Central Venous Cannulation	10	50
Bronchoscopy	5	5
Neonatal intubation	5	15
Paediatric Transesophageal /Epicardial / Transthoracic echocardiography	25	25

Library Facilities

The center/ institute should have access to at least two journals each of:

- Cardiovascular thoracic anaesthesia with paediatric cardiac contents
- Paediatric Cardiac surgery
- Critical care medicine with paediatric contents

