SRI BALAJI VIDYAPEETH

ACCREDITED BY NAAC
WITH 'A' GRADE

DEEMED TO BE UNIVERSITY
DECLARED U/S 3 OF THE UGC ACT, 1956

NIRF - INDIA RANKINGS 2019 : 72 among Universities in India

FUGRA

(Fellowship in Ultrasound Guided Regional Anaesthesia)

SYLLABUS & REGULATIONS

2019-2020 ONWARDS

(As Approved in the Academic Council at the Meeting held on 22.05.2019)

Structured Curriculum for USGRA - 2017

(Fellowship in Ultrasound Guided Regional Anaesthesia)

1. Course title

Fellowship in Ultrasound Guided Regional Anaesthesia.

2. Duration of the course

One year.

3. Nature of the course

Full time

4. Aims and Objectives

On successful completion of the course the fellow should be able to demonstratecompetency, knowledge and understanding, in execution ofUS guide Regional anaesthesia for better patient care.

5. Faculty of the course

Faculties from Department of Anaesthesiology and Anatomy will be involved in the teaching and training of the fellow.

6. Proposed number of seats

Two candidates per academic session (March- February)

7. Eligibility criteria for admission

MD / DA / DNB in Anaesthesiology/ 10 yrs of experience in anaestheiology department/ any equivalent anaesthesiology degree from their home country (for NRI candidates)

8. Course content including teaching hours

Enclosed
Ref: curriculum.

9. Course syllabus

Enclosed
Ref: curriculum.

10. Practical and projects if any, details of the same.

1. Fellow has to maintain a dedicated log book indicating the number of cases assisted, performed under supervision, and performed independently.
2. Fellow has to enroll himself into any one of the research projects involving regional anaesthesia and contribute to the designing, data collection, analysis and interpretation, manuscript writing and publication process of the research project.

11. Evaluation pattern

Enclosed
Ref: curriculum.

12. References

The Regional Anesthesiology and Acute Pain Medicine Fellowship Directors group. Guidelines for fellowship training in Regional Anesthesiolgy and Acute Pain Medicine.RegAnesth Pain Med. 2015;40:213-7.

13. Composition of board of studies

Dr. T. Sivashanmugam. MD, FRCP, DNB, PDCC. **- Chairman**
UGRA coordinator,
Professor and Head
Department of Anaesthesiology and Critical Care
MGMC & RI.

Dr. Lenin Babu. MD. **- External Expert**
Curriculum Ratification and Assessor
Prof, Department of Anaesthesiology and CCU
JIPMER.
Puducherry.

Dr. V.R. Hemanth Kumar **- Board Member**
Professor
Department of Anaesthesiology and CCU
MGMCRI

Dr. SripriyaR. **- Board Member**
Associate Professor
Department of Anaesthesiology and CCU
MGMCRI

Dr. Antony John Charles . **- Board Member**
Assistant Professor
Department of Anaesthesiology and CCU
MGMCRI.

Dr. Charulatha Ravindran **- Board Member**
Assistant Professor
Department of Anaesthesiology and CCU
MGMCRI.

Dr. Annie Sheeba **- Board Member**
Assistant Professor
Department of Anaesthesiology and CCU
MGMCRI.

Dr Archana Areti **- Board Member**
Assistant Professor
Department of Anaesthesiology and CCU
MGMCRI.

14. Proposed fees to be collected.
75,000 /= seventy five thousand rupees only

Curriculum

A curriculum should define three components, namely, Knowledge to be learned (Syllabus, Cognitive domain), Skills to be acquired (practical training, psychomotor domain) and the Attitude to be developed (Behavioral changes to be brought about, Affective domain) and the Teaching-Learning methods to be adopted to achieve the goals and the methods of assessment throughout the training period and at the completion of training.

1. **Knowledge to be learned (Theory, Cognitive domain)**

The candidate should be able to demonstrate a clear understanding of the following aspects in UGRA.

(i) Equipment

a) Physical principle behind the US image generation
b) Knobology, Transducers and its application.
c) Potential pitfalls and artifacts in US imaging of nerves.
d) Colour Doppler principle and its application
e) Special softwaresavailable for better needle nerve visualization
f) Biological effects of US
g) Equipment disinfection and sterilization procedures.

(ii) Applied Anatomy

a) Regional innervation and anaesthesia strategies for head and neck surgery
b) Regional innervation and anaesthesia strategies for Upper limb
c) Regional innervation and anaesthesia strategies for thorax
d) Regional innervation and anaesthesia strategies for abdominal cavity
e) Regional innervation and anaesthesia strategies for Hip and Lower limb.
f) Potential US window and cross sectional anatomy for regional anaesthesia.
g) Epidural and Intrathecal space

(iii) Applied physiology

a) Nerve conduction and type of nerve fibers
b) Pain pathway
c) Pathophysiology of acute and chronic pain
d) Differential blockade
e) Nerve Injury – assessment, treatment and follow-up.
f) Intraneural injection.
g) Tourniquet implications

(iv) Applied Pharmacology

a) Pharmacokinetics and dynamics of Local anaesthetics
b) Pharmacokinetics and dynamics of LA adjuvants.
c) Pharmacokinetics and dynamics of Anticogulants.
c) Conscious sedation
d) LA Systemic Toxicity
e) Neurolytic agents.

2. Skills to be acquired (practical training, psychomotor domain)

At the end of 12 months the fellow should be able to demonstrate competency in performing various UGRA techniques in the following aspects.

a) Find the target of interest in the center of the image
b) Place the machine focus on the target structures
c) Place depth setting at 1 cm deep to target structures
d) Adjust gain, time gain compensation, and frequency as necessary
e) Appreciate Joint Committee recommended standardization of patient-screen relationships
f) Initiate the PART maneuvers to optimize image quality
g) Define relevant anatomy in each region including the ability to identify muscle, pleura, nerve, tendon, and bone.

Levels of difficulty of USG guided blocks based on learning curve required to achieve success rate

	UPPER LIMB	LOWER LIMB	TRUNCAL BLOCKS
LEVEL 1	Interscalenebraxchial plexus Supraclavicular brachial plexus Axillary brachial plexus	Femoral Saphenous Popliteal sciatic	
LEVEL 2	Infraclavicular brachial plexus Suprascapular nerve Mid- forearm Mid- humeral	Subgluteal sciatic nerve Common peroneal nerve Tibial nerve Ankle block	Transversus abdominal plane Rectus sheath Ilio-inguinal / iliohypogastric nerve block. PEC 1/2, SAP
LEVEL 3		Obturator nerve Parasacral sciatic Lumbar plexus	Quadratuslumboram Thoracic paravetebral Lumbar paravetebral Central neuraxial blocks 1. Spinal 2. Epidural 3. Caudal
	CONTINUOUS CATHETER BASED TECHNIQUES		
	HEAD & NECK BLOCKS		

h) Scan anticipated needle trajectory with color Doppler to identify any unsuspected vascularity.
i) Define needle insertion technique using the Joint Committee recommended terminology (in-plane vs out-of-plane)
j) Recognize correct and incorrect distributions of local anesthetic
k) Understand potential difficulties and pitfalls.
l) Use of nerve stimulator along with USG to detect intraneural needle placement
m) Rescue blocks
n) Block failure management plans
o) Application of the acquired knowledge and skill for providing

1. Acute pain relief – such as management of post- operative pain by continuous catheter techniques
2. Chronic pain relief
3. Rehabilitation – such as in peri-arthritis shoulder, knee mobilization following TKR surgeries.

3. **Attitude to be developed (Behavioral changes to be brought about, Affective domain)**

At the end of training programme the fellow should develop the attitude to

a) Communicate sensitively and effectively with patients and their families regarding ultrasound findings
b) Explain the merits and demerits of UGRA in terms that the patient can understand
c) Demonstrate team leadership/management skills for the management of an effective regional anesthesia service
d) Recognize costs associated with UGRA practice
e) Collaborate with other members of the health care team to ensure quality patient care

f) Use evidence-based, cost-conscious strategies in caring
g) Identify and acknowledge gaps in personal knowledge and skills in the care of patients presenting for UGRA
h) Use textbook and online and computer-based resources to broaden knowledge base regarding UGRA techniques
i) Perform electronic searches of the medical literature to identify articles that address the medical issues surrounding UGRA.
j) Understand and critically evaluate outcome studies related to the influence of UGRA on Perioperative outcome.
k) Develop time management skills to perform the required tasks in a reasonable amount of time with satisfactory quality.

4. Teaching and Learning Methods

Theory	**Practical**
Friday **3pm – 4pm** **1class /week** 1×20 = 20classes	**<u>Clinical training</u>** **Monday to Saturday** **8:30 to 2:30pm** • Observing / Facilitating / Conducting exclusive Ultrasound Guided Regional Anaesthesia list. • Minimum exposure: Aiming to attain the level of competency as indicated in the EPA by the end of one year training. **Tuesday / Wednesday** **2:30 – 4pm - Pain clinic and vascular access clinic.** **Should be available in house to attend emergency calls for regional anaesthesia.**
<u>Teaching and Learning methods</u> Didactic lecture Microteaching Simulation based teaching (LA toxicity)	**<u>Cadaveric training</u>** **<u>Aim –</u>** to make the candidate understand the correlation between sonoanatomy and gross anatomy so that he/she can identify all the relevant structures needed for the performance of RA. Areas to dissect – 1. Upper limb. a) BP above clavicle. b) BP below clavicle. 2. Lower limb.

	a) Sciatic nerve. b) Femoral nerve 3. Abdomen – a) TAP, rectus sheath. b) Lumbar plexus , quadratus lumboram 4. Thorax – thoracic paravertebral Monday 2:30 – 3:30pm 1hr / week 1×20 = 20 hrs.
Log book maintenance -E- portfolio -RA record **Research Activities.** Active participation in ongoing RA research projects.	**<u>Phantom training</u>** Integral part of clinicalTraining for 1. Needling skills a) Out of plane technique b) In plane technique c) Walk down technique d) Rocking e) Jiggling f) Hydro-dissection g) Hydro-location h) Angle on insonation and principles i) Advanced software usage – needle guides/ profile 2. Water bath spine phantom- for spine anatomy.

5. Formative assessment

Formative assessment will be performed by monitoring through Entrustable Professional Activity – EPA. EPA's are developed by converting each block into a professional activity. Each professional activity will be assessed in all six competency domains- three core specialty specific (medical knowledge, skills and system based practice) and three general (problem based learning improvement, professionalism, inter-personal communication skills)competencies. Each competency will be evaluated and scored as per the departmental policy document [Annexure 1] and the final verdict on the competency level will be granted.

The competency will be divided into levels of increasing Entrustability as follows.

Level	Task
I	can observe
II	can perform under strict supervision
III	can perform under loose supervision
IV	can perform independently
V	can teach

The final competency level will be derived by computing scores obtained in the individual competency domain asdescribed into department EPA policy document.
The candidate should achieve minimum of level III or IV in various EPA's as described in the policy document. The road map to achieve it (milestones) has been described in the EPA milestone document Annexure 2.

6. Summative assessment

(i) Theory

Title	Regional Anaesthesia
Time	3hrs
Mark Distribution	Equipment and technology – 20% Applied Anatomy and physiology – 20 % Applied pharmacology – 10% RA strategies for specific surgery – 30 % Complications – 10% Recent advances – 10%
Pattern	10 short notes 10 × 10 = 100.
Pass	Minimum 45%

(ii) Practical (3Hrs) -The practical examination should be structured and objective as possible.
Components: 10 stations X 10 marks = 100 marks

S. no	Station	Competency domain assessed	Marks
1	Upper limb	MK, skill, system based practice	10
2	Lower limb	MK, skill, system based practice	10
3	Thorax	MK, skill, system based practice	10
4	Abdomen	MK, skill, system based practice	10
5	CNB	MK, skill, system based practice	10
6	Equipments	US, NM stimulator, needles	10
7	Drugs – LA, adjuvants, sedatives, resuscitation	MK	10
8	Soft skills- informed consent, interpersonal communication	IPC, professionalism	10
9	Hard skills - needling	Skill, System based practice	10
10	Complications – LAST, delayed neurological recovery	MK	10
TOTAL			**100**

[MK – medical knowledge, interpersonal communication]

Segments	**Total Marks**
Theory	100
Practical including viva	10 X 10 = 100
Grand Total	**200**
Pass	**Minimum 45% in two segments (Theory, Practical) but the aggregate should be more than 50%.**