POST - DOCTORAL FELLOWSHIP PROGRAMME IN REPRODUCTIVE MEDICINE

DURATION OF THE COURSE : TWO YEARS

Detailed syllabus:

Part 1 Basic Sciences:

Anatomy	: Male and Female genital tract
Physiology	: Menstrual cycle / ovulation
Endocrinology	: Relevant to human reproduction – Pituitary hormones / Thyroid function / Control of reproduction
Embryology	: Cell cycle, gametogenesis, Fertilization & cleavage structure of sperm and oocytes
Genetics	: Nomenclature / Basic principles prenatal diagnosis / Preimplantation diagnosis Laboratory orientation: Principles / Laboratory equipment – handling and maintenance Record keeping
Andrology	: Spermatogenesis, Components, Seminogram / Sperm function tests.

Part 2

Infertility	: Board outlines of causes of male and female.

Assisted reproductive technology

Evolution

Different technologies

Andrology laboratory

Semen analysis

Processing sperm for various procedures – intrauterine insemination

Processing samples – testicular / epidydymal

Chronic villous sampling

Embryology laboratory

Culture media
Egg identification
Insemination
Fertilization and cleavage check.
Embryo transfer technique
Blastocyst culture
Embryo hatching
Techniques of intracytoplasmic sperm injection
Cryopreservation
- Principles of cryopreservation
- Semen freezing / Embryo freezing
- Slow freeze techniques / Nitrification

Ethical principles in ART

After completion of the course the reproductive medicine specialist will be proficient in the following areas of learning

General operative gynaecology
Minimally invasive surgery and microsurgery
Reproductive endocrinology including laboratory techniques.

General operative gynaecology

Proficient in the etiology, pathophysiology, diagnosis and management of common gynaecological problems related to infertility like – fibroids / endometriosis / pelvic infections / dysfunctional bleeding / early pregnancy related problems.

Proficient in the surgical management of common gynaecological problems like ovarian cyst / fibroids early pregnancy related problems. A clear understanding of the principles of reconstructive surgery as applied to Mulllerian duct abnormalities – vaginal agenesis, Uterine unification etc. is essential.

Proficient in the practice of microsurgical principles as applied to the treatment of tubal
disease especially with regard to proximal Tubal obstruction and Tubal recanalisation.

Minimally invasive surgery
Proficient in the principles and practice of diagnostic and operative laparoscopy for infertility like release adhesions / cystectomy / endometriosis, etc.

Proficient in the principles and practice of diagnostic and operative hysteroscopy for infertility like removal of foreign body, polyps, IUCD / biopsy / septum resection / adhesiolysis / cannulation of ostium / vaginal myomectomy & subonucous fibroid etc.

Reproductive Endocrinology including laboratory techniques
Attain expertise:
In the use of ovulation inducing agents and hormonal control of the menstrual cycle.
Follicular recruitment and retrieval procedures including GIFT.
Understand and be able to manage OHSS.
Trans Vaginal Ultrasonography with particular reference to follicular monitoring and
early pregnancy scanning.
Andrology: with reference, maintenance and trouble shooting.

Laboratory Technology:
Familiarity with
Laboratory equipment, maintenance and trouble shooting.
Detailed knowledge of ART procedures carried out like semen preparation, oocyte
identification and grading, embryo grading, micromanipulation, cell culture, freezing
techniques etc
Log book: to be maintained to ensure practical exposure.

Suggested minimal requirements:

Microsurgery	Assist	15 Tubal recanalisation
	Assist	15 Proximal corneal block
	Perform	10 Tubal recanalisation procedures
Minimally Invasive	Assist	20 diagnostic laparoscopies
	Assist	20 operative laparoscopies

	Perform	20 diagnostic laparoscopies
	Perform	10 operative laparoscopies
Andrology	Assist	20 PESA, TESA, Biopsy testis
	Perform	5 PESA, TESA, Biopsy testis
IVF	Assist	25 Oocyte retrieval
	Perform	10 Oocyte retrieval
	Assist	5 GIFT
	Perform	2 GIFT
Laboratory	Observe	20 semen analysis & 20 sperm preparation
	Perform	10 semen analysis & 10 sperm wash procedures
	Follow up	5 cases of IVF 5 ICSI retrieval to embryo transfer (written records)
Counseling sessions	Observed	10 sessions
	Performed	25 sessions

1. Reproductive anatomy and physiology of the male and the female.
2. Reproductive endocrinology.
3. Gametogenesis.
4. Fertilization in vivo.
5. Implantation and early embryogenesis.
6. Pathology of infertility - Causes of infertility namely the ovarian, tubal, uterine, male factors, pathology that reduces fertility namely endometriosis, fibroid, adenomyosis uterine anomaly, etc.
7. Approach to investigate and diagnose sub-fertility.
8. Clinical decision making and choice of treatment.
9. Pharmacology - Pharmacological effects of the various drugs including the pharmacokinetics and pharmacodyanamics of the commonly used drugs.
10. Clinical Embryology.
    - Principles and practice of semen analysis and cryopreservation of semen.
    - Cytology of mammalian and human oocyte to identify stages of oocyte maturation accurately.
    - All aspects of embryology including developmental iology.
    - Cell biological techniques used in cell and tissue culture.
    - Molecular biology and genetics of human reproduction.
    - Micromanipulation of sperm and oocytes for carrying out ICSI and single-cell biopsies of embryos for preimplantation genetic diagnosis.
    - Principles and functioning of all the equipment used in the laboratory.
    - In vitro fertilization of oocytes after processing the gametes.
    - Principles and practice of embryo freezing.
11. Anesthesia during the ART procedure.
12. Complication of ART procedure.
13. Ovulation induction during IUI and IVF procedures.
14. Ultrasound and other imaging modalities in infertility.
15. Fundamental of the surgical procedures namely laparoscopy, hysteroscopy, myomectomy etc.
16. Pre-conception evaluation and counseling.
17. Administration

    Setting up the ART unit, quality control and assurance, creating protocol for management and organizing and coordinating of clinical meetings.

18. Research and audit.
19. Counseling of the infertile couple
Implicative, therapeutic, ethical and social.
20. Teaching.
21. Clinical andrology.

Components of the fellowship:

1. Ovulation induction protocols

The trainees work in the hospital out-patient unit where they share the responsibility with the consultant in the evaluation of the infertile couple, participate in the decision making depending on the couple's need, formulate a plan of action, pre-procedure assessment, counseling, protocol selection, monitoring the patient for response and early detection of side- effect, etc. The trainee receives instruction and is guided by the consultant in acquiring the cognitive and technical skills for the various diagnostic and therapeutic procedures.

2. Ultrasound and other imaging

The trainee acquires special competence in ultrasound imaging both in the pre-procedure evaluation and in the monitoring of the infertile women.

3. Clinical Embryology

Each trainee is required to spend a minimum required time in the IVF laboratory.

4. Surgical training

The trainee is required to participate in the pre-procedure assessment; surgical procedure and the post operative follow up the patients who undergo laparoscopy, hysteroscopy and laparotomy.

5. Research and Audit

The research project should be approved and should demonstrate the basic principles of the research. The trainee is required to participate in the audit

of the ART procedure and should obtain knowledge in quality control and assurance.

Specific Objective of the fellowship

The practice of reproductive medicine involves the following major subgroup of patients, namely

A. Infertile couple with female factor

1. Anovulation, namely WHO type 1, 2, 3, 4.
2. Tubal factor namely with tubal obstruction, hydrosalpinx.
3. Uterine cavity abnormality both congenital and acquired (Fibroid, adenomyoma, septum and uterine malformations).
4. Endometriosis.
5. Endocrine abnormality (hyperprolactinemia, hyperandrogenism, etc).
6. Recurrent pregnancy loss.

B. Infertile couple with male factor

1. Erectile & Ejaculatory dysfunction.
2. Obstructive azoospermia.
3. Non- obstructive Azoospermia.
4. Other sperm Abnormality (OATZ).
5. Endocrine abnormalities (hypogonadotrophic hypogonadism).

C. Couple with decreased gamete reserves to be offered donor gamete or embryo programme.

D. Evaluation of the donors with the counseling of the ethical and legal issues.

The academic activities of the programme in the hospital should include:

- Regular academic sessions - 2 sessions per week
- Case discussions - One per week
- Seminars - One per month

- Paper presentation. - one per year
- Audit - 2 per year
- Projects - One in 2 years
- Research - as co-Author - one in 2 years
- Thesis
- Conferences - 2 per year
- CMEs - 4 per year minimum CME's to be attended - 6
  maximum - 8
- Workshops. - one per year (2 works shop)