

Curriculum

FNB Fellowship



Andrology

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I. INTRODUCTION:

The modern management of male reproductive and sexual health requires an in-depth knowledge of the anatomy, physiology, endocrinology and pathology of the male genital system, of specific investigations and various imaging techniques, of surgical procedures for therapy and reconstruction, and some understanding of the biological sciences and laboratory procedures, including Assisted Reproductive Techniques (ART).

The aim of this course is to create an expert level of proficiency in **Andrology and related aspects of Men's Health** with Post Graduate knowledge to understand and manage male infertility, male sexual dysfunction, hypogonadism and related aspects pertaining to male ageing.

The Fellowship is intended for a qualified urologist, either M.Ch. or DNB Urology, who wishes to subspecialize in the field of andrology.

II. GOALS & OBJECTIVES

The Andrology fellowship will enable the candidate to acquire an advanced body of knowledge and a high level of skill required for the management of male reproductive problems, male sexual dysfunction, male endocrine problems, and late onset hypogonadism. At the completion of the course the trainee should be able to provide comprehensive care for all these problems, offer appropriate counseling, diagnosis and treatment, and establish an Andrology Centre or provide comprehensive andrology services to an assisted reproduction centre.

1. Learning Outcomes:

- i. Acquisition of current, latest, scientific and evidence-based knowledge necessary for attaining programme outcomes
- ii. Skill to undertake independent clinical practice thereby delivering the highest standard of andrology care to the community
- iii. Correct attitude of responsibility, accountability and caring
- iv. Foundation of ethical values in the practice of Andrology
- v. Competency to communicate effectively with patients, peers, colleagues, and the community in the discharge of his/her clinical role
- vi. Skill in academic and research aspects of Andrology
- vii. Skill to be an effective teacher and communicator in Andrology

2. Specific Objectives:

- i. Comprehensive knowledge related to male reproductive and sexual medicine.
- ii. Understanding of male reproductive endocrinology
- iii. Develop high level of surgical skill in andrological procedures, including use of operating microscope for various andrological procedures.
- iv. Competence in andrological and ART-related laboratory techniques
- v. Basic counselling skills related to infertility and psycho-sexual counseling.

3. In addition, individuals completing this training program will be able to:

- i. Evaluate the clinical literature on erectile dysfunction and reproductive health in a critical fashion and make contributions to the field
- ii. Teach the specialty of Andrology
- iii. Organize a multidisciplinary team to manage erectile dysfunction and male infertility.

III. TEACHING AND TRAINING ACTIVITIES

The fundamental components of the teaching programme should include:

1. Case presentations & discussion- once a week
2. Seminar – Once a week
3. Journal club- Once a week
4. Grand round presentation (by rotation departments and subspecialties)- once a week
5. Faculty lecture teaching- once a month
6. Clinical Audit (Mortality and Morbidity review)-Once a Month
7. A poster and have one oral presentation at least once during their training period in a recognized conference.

The rounds should include bedside sessions, file rounds & documentation of case history and examination, progress notes, round discussions, investigations and management plan) interesting and difficult case unit discussions.

The training program would focus on knowledge, skills and attitudes (behavior), all essential components of education. It is being divided into theoretical, clinical and practical in all aspects of the delivery of the rehabilitative care, including methodology of research and teaching.

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- i. **Theoretical:** The theoretical knowledge would be imparted to the candidates through discussions, journal clubs, symposia and seminars. The students are exposed to recent advances through discussions in journal clubs. These are Considered necessary in view of an inadequate exposure to the subject in the Undergraduate curriculum.
 - ii. **Symposia:** Trainees would be required to present a minimum of 20 topics based on the curriculum in a period of two years to the combined class of teachers and students. A free discussion would be encouraged in these symposia. The topics of the symposia would be given to the trainees with the dates for presentation.
 - iii. **Clinical:** The trainee would be attached to a faculty member to be able to pick up methods of history taking, examination, prescription writing and management in rehabilitation practice.
 - iv. **Bedside:** The trainee would work up cases, learn management of cases by discussion with faculty of the department.
 - v. **Journal Clubs:** This would be a weekly academic exercise. A list of suggested Journals is given towards the end of this document. The candidate would summarize and discuss the scientific article critically. A faculty member will suggest the article and moderate the discussion, with participation by other faculty members and resident doctors. The contributions made by the article in furtherance of the scientific knowledge and limitations, if any, will be highlighted.
 - a. Training in Operative Andrology: Special attention will be paid to improve the operative skills of the trainee. He shall be trained to take independent operative decisions.
 - b. All residents will participate in Interdepartmental meetings like assisted reproductive unit, Endocrinology, Genetics etc. to provide an opportunity for open discussion on a common subject and to also provide an opportunity to learn views of the specialists on these subjects.
 - c. Exchange programme: 2 weeks exchange each with two other Andrology departments in the country.

IV. SYLLABUS

1. Knowledge:

The candidate will become proficient in the etiology, pathophysiology, diagnosis and management of all andrological problems related to male infertility and sexual dysfunction. The following topics will be covered through lectures, and practical training in the clinic.

i. Male Infertility-

- a. Basic anatomy and physiology of male reproductive system
- b. Assessment of male fertility potential
 - Semen Analysis: Methodology, Interpretation
 - Other Considerations In Predicting Fertility
- c. Evaluation of an infertile male
 - History: General: Specific; Sexual
 - Examination
- d. Investigation
 - Role Of Hormone Analysis
 - Sperm Function Tests: Which? When? Implications?
 - Role Of Ultrasonography – Scrotal, Transrectal, Duplex Doppler
 - Immunological Tests
 - Genetic Testing
 - Role Of Testicular Biopsy
- e. Management of oligoasthenozoospermia
 - Principles Of Management
 - Specific Treatment
 - Empirical Treatment
 - Role Of Varicocele Surgery
 - Seminal Infection: Diagnosis; Treatment
 - Immunological Infertility
- f. Management of Azoospermia
 - Diagnostic Algorithms
 - Role Of Medical Therapy
 - Reconstructive Microsurgery For Obstruction In Vas Or Epididymis
 - Trans Rectal Resection For Ejaculatory Duct Block
 - Surgical Sperm Retrieval Techniques
 - Laboratory Aspects Of Sample Processing After Sperm Retrieval
 - Cryopreservation Of Sperm

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- g. Anejaculation / Aspermia/ Retrograde ejaculation
 - Etiology; Diagnosis; Management
 - Penile Vibrostimulation And Electroejaculation
 - h. Hypogonadotropic hypogonadism
 - Etiology; Diagnosis; Management
 - i. Hematospermia
 - j. Chronic orchalgia
 - k. Chronic prostatitis and pelvic pain
 - l. Management of undescended testes
 - m. Introduction to ART – principles, practice, laboratory
 - n. Future modalities for evaluation and therapy – genomics, proteomics, stem-cell based therapy, in vitro culture, etc.

ii. **Male sexual dysfunction-**

- a. Anatomy and physiology of the male sexual response
- b. Types of male sexual dysfunction
- c. Evaluation of erectile dysfunction
 - History: Specific Points To Be Covered Investigation: Various Tests Available – Technique, Utility And Limitations, Indications And Contra-Indications.
- d. Therapy of erectile dysfunction
 - Psycho-Sexual Counseling
 - Oral Medication
 - Intra-Penile Self Injection
 - Vacuum Erection Devices
 - Penile Implants: Types; Surgical Technique; Complications
 - Newer Experimental Modalities
- e. Premature ejaculation
 - Definition And Etiology Treatment Options
- f. Management of Priapism
 - Ischemic; High Flow; Stuttering
- g. Peyronie's disease
 - Etiology; Conservative Therapy; Surgical Procedures
- h. STIs and their management
- i. Neophallus reconstruction & Transgender surgery
- j. Ageing male
 - Late Onset Hypogonadism
 - Screening For Prostate Cancer

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- General Andrological Care
 - k. Medico-legal aspects
 - l. Setting up an andrology clinic

2. Skills:

The candidate will attain expertise in:

- i. Microsurgical techniques of reanastomosis of the vas deferens, vaso epididymal anastomosis and varicocele ligation
- ii. Sperm retrieval techniques including percutaneous epididymal sperm aspiration, microsurgical epididymal sperm aspiration, percutaneous testicular sperm extraction, testicular mapping and microdissection TESE.
- iii. Trans urethral resection for ejaculatory duct obstruction
- iv. Surgery for male sexual problems including penile prosthetic surgery (fresh and complicated revision cases), correction of congenital penile curvature, reconstruction for Peyronie's disease, penile revascularization.
- v. Ultrasonography of penis, testes, scrotum and ejaculatory ducts

Basic proficiency in andrological and embryological laboratory procedures

V. COMPETENCIES

The department will hold half yearly in-house exams to see the progress of the student. Appearance in these examinations is mandatory. The final examination will be held at the end of 2-academic years

On completion of the course, the candidates will be capable of the following:

- i. Methodical investigation of problems leading to infertility, aging and erectile function in men, including female sexual dysfunction.
- ii. Categorizing them according to clinical condition.
- iii. Conducting necessary investigations and diagnostic procedures.
- iv. Trans rectal / Doppler ultrasound examination for study of testis, prostate and seminal vesicles for evaluation of the pathophysiological processes of testicular, seminal, ejaculatory dysfunction.
- v. Bio Chemical assays of reproductive hormones in serum.

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- vi. Display detailed knowledge and understanding of human Gamete Biology and Molecular perspective.
 - vii. Critical evaluation of new advances in Biotechnology.
 - viii. Acquire ability to establish and IVF Centre.
 - ix. Conductive Quality Control procedures that are essential to the reliable operations of an IVF clinic.
 - x. To familiarize oneself with the technique or handling male and female Gametes use in IVF / ICSI etc.
 - xi. Competence in In Vitro Culture techniques used for Gametes and Embryos.
 - xii. To be capable of Andrology laboratory procedures – semen analysis, sperm processing, donor semen banking, motility enhancers for sperm, cryopreservation of Gametes, Embryos and Tissues for later use in human infertility treatment.
 - xiii. Reasonably predict the viability of an Embryo prior to its transfer in IVF.
 - xiv. Achieve/demonstrate skills for Micromanipulation Procedures as in Intra Cytoplasmic Sperm Injection required for clinical ART.
 - xv. Display some knowledge about the techniques used for Karyotyping (e.g. Lymphocyte cultures, amniotic fluid, cell culture etc.,)
 - xvi. Understand the ethical implications of ART and Cloning
 - xvii. Develop adequate skills in report writing, oral and visual presentations.
 - xviii. Basic use of computers, data analysis and record maintenance.

VI. LOG BOOK

Assessment and Logbook:

1. During the Course

- i. Logbook will be maintained and signed by the Course Supervisor
- ii. Regular evaluation on a 4 weekly basis will be done by viva-voce and review of the logbook by the Section Head.

- iii. Training period will be divided into 4 semesters and an internal assessment test will be given after each semester and trainee assessed.
- iv. The tests will be both written & oral
 - a. MCQ's
 - b. Essay Type and
 - c. Viva Voce

2. For Certification

- i. Logbook
- ii. MCQ's Written
- iii. Essay Type – Written
- iv. Viva- Voce
- v. Lab Practical
- vi. Lab – Viva voce

3. Log Book Requirement

Record of cases observed, assisted, and performed independently as per syllabus together with details of complications, if any, and their management. This will be reviewed regularly. Completed logbook is to be submitted before the practical examination and will be reviewed by the external examiners.

Keys:

O – Washed up and observe

A – Assist a more Senior Surgeon

PA – Perform procedure under the direction of a Senior Specialist.

PI – Perform Independently

Sl No.	PROCEDURE	CATEGORY	NUMBER
1.	History taking, clinical examination, understanding semen analysis and deduction of critical aspects for clinical management of a sub fertile male	PI	200
2.	Investigative procedures in male infertility	PI	50
3.	Evaluation of advanced sperm factors	O	5
5.	Sperm function tests & seminal fluid analysis	O	5

6.	Sperm Morphology: Kruger criteria & Computer assisted morphology analysis	O	5
7.	Quality control in Andrology lab	A	1
8.	Semen Banking / Cryopreservation	O	1
9.	Immunological infertility testing	O	1
10.	Testicular Tissue – histology	PA, PI	10
11.	TESE sample processing/freezing	O	2
12.	PESA, MESA, TESA , microTESE	A, PA & PI	50
13.	Selection of healthy sperm for ICSI	O	5
14.	Microsurgical Varicocele ligation	A, PA, PI	20
15.	Electro ejaculation	A, PA	2
16.	TUR – Ejaculatory ducts	A	2
17.	VVA / VEA	A, PA	5
18.	Counseling in ART	O	5
19.	Setting up of an ART clinic & organizational aspects	O	1
20.	Sonographic evaluation of the penis	O, PA	5
21.	Office tests for ED	PA, PI	50
23.	Explain and demonstrate vacuum erection device	PI	5
24.	Management of prolonged erection and Priapism	PA , PI	2
25.	vibratory therapy for anejaculation	PA, PI	15
26.	Training in intra-penile Self Inj	PA. PI	50
27.	Evaluate, treat, monitor hypogonadism	PA	5
28.	Penile prosthesis – inflatable/non-inflatable	PA, PI	20

4. Allied Subjects to be covered:

- i. Bio chemistry of endocrine glands like thyroid, adrenal glands, ovarian, testicular glands, pancreatic glands (insulin secretion),
- ii. Study of Diabetes / obesity and its relation to infertility, erection, ejaculation and aging etc.,

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- iii. Sexual Counseling theory & practice / Sexual aspects of psychosexual therapy in men & women
 - iv. Psycho-social aspects of self/social identity & counseling
 - v. Lifestyle, sexual practice, depression & self-concept
 - vi. Counseling of the ED patient / Counseling the Aging Male
 - vii. Health promotion, men & alcohol abuse
 - viii. Exercise & healthy living for age prevention

VII. RECOMMENDED TEXTBOOKS AND JOURNALS:

Textbooks

1. Male Sexual Function a Guide to Clinical Management by John J. Mulcahy
2. Textbook of Erectile dysfunction by Culley C Carson
3. Male Sexual Dysfunction by Suks Minhas and John Mulhall
4. Andrology lab manual by Ashok Agarwal
5. Infertility in male by Lipshultz and Niederberger
6. Surgical and medical management of male infertility by Goldstein and Schlegel
7. WHO Manual of Male infertility 6th edition

Journals

1. Asian J Androlgy
2. World J Men's Health
3. Sexual Medicine Journal



आयुर्विज्ञान में राष्ट्रीय परीक्षा बोर्ड
स्वास्थ्य एवं परिवार कल्याण मंत्रालय, भारत सरकार
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