

# **FELLOWSHIP PROGRAM IN PAEDIATRIC UROLOGY**

## **1. Preamble**

The objective of certificate course in Paediatric urology is to produce highly competent manpower in Paediatric Urology

## **2. Objectives**

The training ingredients should provide in depth knowledge of Paediatric Urology and relevant allied subjects

## **3. Eligibility for Admission**

Basic requirement is a Master of Surgery, (M. Ch) in Urology or a M.Ch Paediatric Surgery or Diplomate in General Surgery, Urology, Paediatric Surgery of the National Board of Examination, from a recognized institution.

## **4. Duration of Course**

Duration of the course will be for one academic year for Post M. Ch Students. Two academic years for Post M.S / DNB General Surgery Students.

## **5. Medium of Instruction**

Medium of instruction is English

## **6. Attendance**

80% attendance

## **7. Course content**

1. Normal and pathological embryology of the urinary and genital tract

1.1 Development of the kidney and ureter

1.2 Development of the bladder and the urethra

1.3 Development of the female genital tract

1      Development of the male genital tract

2      Nephrology

2.1 Normal physiology of the urinary tract and kidney

2.2 Pathophysiology of pre and postnatal hydronephrosis

2.3 Haematuria

    2.3.1 Definition

    2.3.2 Analysis

    2.3.3 Aetiology

    2.3.4 Diagnostic

2.4 Parenchymal Pathology

- 2.4.1 Glomerular diseases (glomerulonephritis, hemolytic-uraemic-syndrome)
- 2.4.2 Tubular diseases (acute renal insufficiency, hereditary diseases)
- 2.4.3 Interstitial nephritis

## 2.5 Renal insufficiency and dialysis

- 2.5.1 Aetiology of chronic renal insufficiency
- 2.5.2 Clinic (pyuria, anaemia, hypertension, bone metabolism; growth disorders)
- 2.5.3 Dialysis (indication, peritoneal-haemodialysis)

## 2.6 Renal Transplantation

- 2.6.1 Indication
  - 2.6.2 Selection, risks and contra-indications
  - 2.6.3 Preparation and diagnostic work-up
  - 2.6.4 Transplantation-immunology (HLA)
  - 2.6.5 Cadaveric and living donor kidney
  - 2.6.6 Surgical technique of explanation, implantation and postoperative technical complication
  - 2.6.7 Working of Euro-Transplant-organization
- 1 Post transplant immunosuppression technique
  - 2 Infection

## 3.1 Definition of UTI (asymptomatic bacteriuria, bacterial cystitis, pyelonephritis)

## 3.2 Diagnosis of UTI (microbiology, culture media, preparation techniques)

## 3.3 Specific infection clinical features (abscess, tuberculosis, candida, eosinophilic cystitis, cystitis-cystica)

- 1 Orchitis, epididymitis
- 2 Principles in diagnosis of the urinary tract

## 4.1 history and physical examination of the child at different ages

## 4.2 Associated clinical signs with anomalies of the urinary tract

## 4.3 Urinalysis (stix, microscopic, chemical, culture)

## 4.4 Serum-analysis

## 4.5 Imaging of the urinary tract

- 4.5.1 Ultrasound, color Doppler: theory, possibilities and limitations
- 4.5.2 X-ray: protection principles, urography, cystography, video-urodynamics
- 4.5.3 Contrast media: principles, indication and contra-indications
- 4.5.4 Computerized tomography (principles, interpretation, possibilities, limitations)
- 4.5.5 Magnetic Resonance imaging (principles, interpretation, possibilities, limitations)

## 4.6 Special imaging of the urinary tract using radio-isotopes

- 4.6.1 Principles
- 4.6.2 Static imaging: DMSA

- 4.6.3 Dynamic imaging: DTPA, MAG-3
- 4.6.4 Interpretation of clearance and glomerular filtration rate: principles and limitations
- 4.6.5 Direct and indirect cystography
- 4.6.6 Extrarenal imaging: neuroblastoma
- 4.7 Prenatal diagnostic
  - 4.7.1 Ultrasound
  - 4.7.2 Urinalysis (electrolytes, tubular markers)
- 4.8 Non-invasive diagnosis of the lower urinary tract
  - 4.8.1 Uroflowmetry (principles, methods, interpretation)
  - 4.8.2 Electromyography (principles, methods, interpretation)
- 4.9 Invasive diagnosis of the lower urinary tract
  - 4.9.1 Antegrade and retrograde cystography (technique, interpretation)
  - 4.9.2 Video-urodynamic study (technique, interpretation)
- 1 Cystometry (ambulatory and non-ambulatory)
- 2 Pre, peri and post operative management of the child – Anesthesia principles
- 5.1 Selection, pre-operative studies
- 5.2 Parental information pre and post operative
- 5.3 Ambulatory surgery
  - 5.3.1 Selection
  - 5.3.2 Local anesthesia techniques (methods, pharmacology)
- 5.4 Pain management (oral, rectal, parenteral)
- 5.5 Post operative fluid management
  - 1 Anaesthesia (principles, premedication)
  - 2 Anomalies of the kidney and the upper urinary tract – diagnostic, management, therapeutic options, surgery selection, surgical techniques of:
- 6.1 Prenatal hydronephrosis and associated problems (pulmonary hypoplasia)
- 6.2 Renal agenesis
- 6.3 Renal hypoplasia
- 6.4 Renal dysplasia (multicystic dysplastic kidney, cystic dysplasia with obstruction)
- 6.5 Renal duplication: incomplete
- 6.6 Polycystic infantile and adult renal disease
- 6.7 Horseshoe-kidney
- 6.8 Renal ectopia
- 6.9 Uretero-pelvic junction obstruction (UPJ)
- 6.10 Megacalycosis
- 6.11 Ureterocele (intra and extravesical)
  - 1 Ectopic ureter
  - 2 Anomalies of the lower urinary tract – Diagnostic, management, therapeutic

options, surgery selection, surgical techniques of:

7.1 Urachal pathology (open urachus, cysts, sinus, diverticulum)

7.2 Exstrophy – Epispadias – complex

7.3 Bladder diverticulum

7.4 Vesico-ureteral reflux

7.5 Urethral valves

7.6 Urethritis posterior

7.7 Urethral strictures

7.8 Duplication of the urethra

7.9 Urethral diverticulum

7.10 Meatal prolapse

7.11 Urogenital sinus anomalies

1 Cloacal anomalies

2 Anomalies of the upper and lower urinary tract- Diagnostic, management, therapeutic options, surgery selection, surgical techniques of:

1 Prune-Belly Syndrome

2 Anomalies of the penis- Diagnostic, management, therapeutic options, surgery selection, surgical techniques of:

9.1 Hypospadias

9.2 Phimosis (lichen sclerosus)

9.3 Epispadias

9.4 Buried penis

9.5 Penoscrotal web

9.6 Micropenis

10. Anomalies of the testis and the scrotum - Diagnostic, management, therapeutic options, surgery selection, surgical techniques of:

10.1 Maldescent of the testis (cryptorchism, ectopia, retractile)

10.2 Anorchia, polyorchia

10.3 Hydrocele, hernia

10.4 Varicocele

1 Spermatocoele

2 Sexual differentiation problems

11.1 Embryology and physiology of genital differentiation

11.2 Hermaphroditism, female and male pseudohermaphroditism

11.3 Mixed gonadal dysgenesis

1 Chromosomal abnormalities

2 Function disorders of the lower urinary tract

12.1 Normal anatomy and physiology

12.2 Classifications of functional disorders

12.3 Urinary diversion techniques

12.4 Non-neuropathic function disorders

12.5 Neuropathic function disorders: conservative treatment, bladder augmentation

1 Management of associated problems of neurogenic disorders (bowel, tethered cord, pubertas praecox, latex allergy, amnesia)

2 Primary monosymptomatic nocturnal enuresis

13.1 Pathophysiology

1 Treatment options

2 Paediatric urology emergencies - Diagnostic, management, therapeutic options,

surgery selection, surgical techniques of:

14.1 Renal infectious problems (pyonephrosis, renal abscess)

14.2 Renal non-infectious problems (trauma, renal vein thrombosis)

14.3 Ureteral trauma

14.4 Adrenal haemorrhage

14.5 Renal colic (acute upper urinary tract obstruction)

14.6 Urinary retention

14.7 Testicular torsion

14.8 Torsion of the appendix testis

14.9 Incarcerated hernia

14.10 Testicular rupture

14.11 Orchitis

14.12 Epididymitis

14.13 Paraphimosis

14.14 Priapism

14.15 Penile and scrotal trauma

14.16 Bladder trauma (intra and extraperitoneal rupture)

14.17 Urethral rupture

14.18 Trauma of the female genital tract

14.19 Infection of the female genital tract (vulvovaginitis, foreign body)

14.20 Acute hydro and haematocoele

1 Idiopathic scrotal oedema

2 Urolithiasis

15.1 Aetiology

15.2 Metabolic disorders

15.3 Chemical characteristics

15.4 Clinical, diagnostic and management

1 Treatment options

2 Paediatric urology oncology - Diagnostic, management, therapeutic options, surgery selection, surgical techniques of:

- 16.1 Wilm's tumour
- 16.2 Neuroblastoma
- 16.3 Rhabdomyosarcoma
- 16.4 Testicular tumours (Leydig cell, Yolk sac, Leukaemia)
- 16.5 Hypernephroma
  - 1 Pheochromocytoma
  - 2 Management and social aspects of the care of the child as a patient
- 17.1 Communication skills with the child and its family
- 17.2 Knowledge of the psychosocial and sexual development of a child

**8. Teaching Hours**

- 1 Daily ward rounds
- 2 O.T when cases are posted
- 3 Tuesday – Case discussion (2 hrs)
- 4 Thursday – Journal club / seminar (2 hrs)

**9. Scheme of Examination**

Eligibility - 2 Publications in Indexed Journals

-2 Presentations in Conferences **Paper - 1:** Basic sciences as applied to genito – urinary surgery including

adrenals, Recent advances = 100 Marks **Paper - 2:** Clinical and operative pediatric urology = 100 Marks **Case Presentation + Viva Voce = 200 Marks**

**Total number of marks = 400 Marks**

**A) Theory (2 papers of 100 Marks each) = 200 Marks**

Type of question papers (Each paper will have): 2 Long Questions of 20 Marks each = 40 Marks  
 6 Short Essay Questions of 10 Marks each = 60 Marks  
 Total = 100 Marks

**B) Practical Examination = 200 Marks**

Case Presentation (1 Long Case & 2 Short Cases) = 150 Marks Viva- Voce = 50 Marks

**C) Maximum Marks 10. Declaration Of Results**

Theory	Practical	Viva	Grand Total
200	150	50	400

a) Passing criteria: 50% marks in both theory and practical examination separately.

b) Declaration of Class: 50% and above pass, 65% and above First Class, 75% and above Distinction.

c) A candidate who fails will have to appear for reexamination in the following academic year without repeating the course or courses of instruction.

**11. Reference Book (Latest editions)**

<b>Sl. No.</b>	<b>Name of the text book</b>	<b>Author</b>	<b>Publisher</b>
1	Adult & Paediatric Urology	Gillinwater	Saunders
2	Campbell's Walsh Urology	Wein / Peters	Elsevier
3	Paediatric Urology	Marquend	Elsevier