

MEDICAL UNIVERSITY – PLOVDIV
FACULTY OF MEDICINE

SYLLABUS
IN
UROLOGY

Approved by the Department Council - Protocol № 5/07.06.2022

Confirmed by the Faculty Council - Protocol №6/15.06.2022

UROLOGY

Syllabus

Discipline	Final exam/ semester	Auditorium classes				ECTS non-auditorium classes	ECTS total	Academic hours in years and semesters	
		Total	Lectures	Practices	ECTS			4/5 year	
Urology	VIII / IX					0.8	2.5	VIII	IX
		50	20	30	1.7			20/30	20/30

Name of the discipline:

"UROLOGY"

Type of discipline according to EDI:

Mandatory

Level of training:

Master / M /

Forms of training:

Lectures, exercises

Training course:

IV / V course

Duration of training:

One semester

Hours:

20 hours of lectures, 30 hours of exercises

Teaching tools:

Audio visual equipment; models; catheters; imaging equipment; ureteral catheter, suprapubic catheter, nephrostomy set, work with patients under the surveillance of the professor.

Assessment: Current and final assessments: Test and oral exam

Final assessment:

Assessment by the assistant during the semester;
Test including open and closed questions and clinical cases;
Oral exam with final grade.

Aspects of the assessment:

The final grade determines the extent to which the student has achieved the goal of the education set at the beginning. It is multi-component and includes a written final exam grade as well as the following components:

Assessment from ongoing control

Assessment from a written exam

Assessment from the final oral exam

If one of the components of the final grade is weak 2, then the final grade will be weak 2.

Semester exam:

Written and oral

State Exam:

Part of the "Surgical Diseases" exam

Professors:

Assoc. Prof. at the Department of Urology and General Medicine

Department:

UROLOGY AND GENERAL MEDICINE

ANNOTATION

Urology is a medical specialty with a predominant surgical focus. It studies the symptoms, etiology, pathogenesis, diagnosis, prevention and treatment of the diseases of the male genitourinary system and female urinary system.

MAIN TASKS OF THE UROLOGICAL PROGRAMME

To teach the students: Patient physical examination, laboratory and imaging investigation.

To develop the ability of clinical interpretation of the general and urological symptoms. The differential diagnosis and the final diagnosis of urological patient.

To understand the acute and urgent urological cases and the appropriate treatment.

To assimilate practical skills for obtaining the right diagnosis.

To be able to perform basic urological procedures and manipulations.

To understand the interdisciplinary approach in urology with nephrology, general surgery, pediatrics, obstetrics and gynecology, oncology, radiology, etc.

EXPECTATIONS

Assessment of basic urological information from the history and the physical examination.

To be able to perform the most commonly used urological methods of examination and treatment – digital rectal examination, ultrasound examination, catheterization, suprapubic drainage of the urine (cystofix).

Laboratory and imaging investigation.

To have the necessary knowledge about the common urological diseases in pediatrics, general medical practice, methods of screening, diagnosis and treatment.

Skills for recognition, correct assessment, approach and initial treatment of emergencies and urgent cases in urology - acute urinary tract infections, renal colic, trauma, hematuria, urinary retention, paraphimosis, testicular torsion, priapism, etc.

Understand the indications for surgical or conservative treatment of urological diseases.

LECTURES

Lecture № 1- 2 hours

Semiotics of urological diseases. Overactive bladder.

General symptoms and scales for assessing the general condition of the patient. Classification of urological symptoms. Pain - characteristic, localization and mechanism of onset. Disorders of urination. Changes in urine output - quantitative and qualitative (characteristics of hematuria according to different stratification criteria).

Genito-sexual disorders. Erectile dysfunction - definition, diagnosis, urological diseases and operations as a cause of functional and organic erectile dysfunction, diagnosis and therapeutic recommendations for treatment. Overactive bladder - pathogenesis and treatment options.

Lecture № 2 - 2 hours

Instrumental methods of investigation in urology. Laboratory investigation.

Anatomical and physiological characteristics of male and female urethra. Instrumental methods for examination of urethra, bladder, ureter and kidney - technique, indications and contraindications (relative and absolute).

Types of catheters, necessary materials and tools for catheterization. Laboratory investigations - specific tests, a panel of tumor biomarkers, functional examination of renal function and hormonal tests. Standardized criteria for evaluation of ejaculate according to WHO (2010). - disorders in the sperm analysis and their clinical evaluation (OAT - syndrome).

Lecture № 3 - 2 hours

Congenital disorders of the urinary and male genital system.

Embryonic development of the urinary system. Kidney abnormalities - in number, size and position. Structural abnormalities - polycystic kidney disease, kidney cysts. Classification of cysts by Bosniak. Ureteral abnormalities.

Bladder abnormalities. Embryonic development of the testes. Congenital diseases of the testicles - classification, diagnosis, surgical management. Genetic syndromes leading to abnormalities in the size and structure of the testis. Congenital diseases of the epididymis. Congenital diseases of the vas deferens. Congenital diseases of the prostate gland.

Congenital anomalies of the penis. Congenital anomalies of the urethra - modern classifications and surgical approach. Sexual development disorders - introduction, definitions and classification, clinical manifestation and diagnostic evaluation.

Lecture № 4 - 2 hours

Injuries to the urinary system and male genital system.

Kidney trauma - introduction, classification, mechanisms of onset, pathological forms of closed kidney trauma, clinic, diagnosis, treatment. Urethral trauma - Iatrogenic ureteral trauma, diagnosis, management, prevention.

Bladder trauma - mechanism of onset, classification, Iatrogenic bladder damage, diagnosis, surgical approach. Urethral trauma - classification, clinical manifestation according to the location of the injury in the urethra, diagnosis, surgical approach. Penile trauma. Trauma of the scrotum and intrascrotal organs.

Lecture № 5 - 2 hours

Urolithiasis – etiology, pathogenesis, clinical manifestation and diagnosis.

Epidemiology. Localization and shape of urinary stones. Etiology of urolithiasis (causal and formal genesis). Chemical composition of stones. Diagnostic algorithm. Complications of urolithiasis. Acute Obstructive Renal Failure (anuria) - subrenal causes. Surgical treatment of urolithiasis - goals, types of surgery. Minimally invasive methods of treatment of urolithiasis - extracorporeal and intracorporeal.

Lecture № 6 - 2 hours

Urological tract infections.

Pyelonephritis - definition, epidemiology, etiology, surgical predisposing factors. Purulent - inflammatory diseases of the kidney - acute purulent pyelonephritis - pathoanatomical forms, pathogenesis, clinical manifestation (symptoms and forms), diagnosis, surgical approach and prevention. Urosepsis - definition, localization of purulent infection in the genitourinary system, specific difference between sepsis and urosepsis, clinical manifestation and treatment. Hospitalism. Inflammatory diseases of the bladder - etiology, classification, conservative treatment and surgical aspects. Inflammatory diseases of the prostate gland - classification, etiology, diagnosis and treatment. Inflammatory diseases of the urethra. Inflammatory diseases of the testicles and epididymis. Fournier's gangrene. Inflammatory diseases of the penis.

Lecture № 7 - 2 hours

Real parenchymal tumors and primary urothelial tumors.

Terminology of renal cell carcinoma. Epidemiology. 2016 WHO classification of renal tumors. Clinical manifestation and clinical interpretation of symptoms. Paraneoplastic syndrome. Clinical and pathological staging of the primary tumor according to TNM - 2017. Surgical treatment. Tumors of the renal pelvis and ureter - specifics in tumor spread, diagnosis and treatment. Bladder tumors - histological classification and differentiation of the tumor, clinical manifestation, clinical and pathological staging of the primary tumor, diagnosis, treatment - methods for urine derivation after cystectomy.

Lecture № 8 - 2 hours

Benign prostatic hyperplasia and prostatic carcinoma.

Benign prostatic hyperplasia (BPH) - consensus definition of the condition, endocrine control of normal prostate growth, pathogenesis of BPH, symptoms of lower urinary tract (LUTS), clinical markers for BPH progression, assessment of LUTS, diagnosis and modern medical and surgery treatment of BPH.

Prostate cancer - epidemiology; histological classification 2016 WHO, risk factors, onset and development, clinical forms of PC; diagnosis; staging; surgical treatment - definitive and palliative (maximum androgen blockade - MAB) radiotherapy - definitive and palliative; systemic therapy - hormone therapy and systemic therapy in castrated resistant PC (CRPC), combined therapeutic approaches.

Lecture № 9 - 2 hours

Neoplasia of the male genital system.

Testicular tumors - epidemiology, risk factors, staging, pathways of tumor spread, histological classification of testicular tumors according to WHO 2016, clinical manifestation (clinical masks), specific diagnostic and prognostic tumor biomarkers and their clinical interpretation, general principles of treatment and control of fertility after retroperitoneal lymph dissection and adjuvant therapy. Penile cancer - epidemiology, proven risk factors. histological classification of penile tumors according to WHO 2016, pathways for the spread of penile cancer, clinical manifestation, diagnostic tests, surgical treatment of the primary tumor and regional lymph nodes, follow-up and monitoring.

Lecture № 10 - 2 hours

Male infertility. Erectile and ejaculation disorders.

Male infertility - definition according to the WHO 2015, epidemiology, etiology of the male infertility, diagnostic assessment of male fertility, modern treatment approach in male with reduced fertility (surgical collection of sperm for the assisted reproduction).

Anatomical, physiological and nerve regulation of ejaculation. Anatomical abnormalities of ejaculation. Functional disorders of ejaculation - premature, late, painful, retrograde ejaculation and anejaculation. Pharmacological abnormalities in ejaculation. Treatment of ejaculation disorders (non-surgical and surgical). Male hypogonadism.

PRACTICAL SEMINARS

Seminar 1 – 2 hours

Semiotics of urological diseases.

Seminar 2 – 2 hours

Non-invasive methods of investigation in urology - physical, laboratory, radiology.

Seminar 3 – 2 hours

Invasive – instrumental methods of investigation in urology:

- Endoscopic

- Histological

Methods of drainage to the urinary bladder. Methods of drainage to the upper urinary system.

Seminar 4 – 2 hours

Congenital urological disease.

Seminar 5 – 2 hours

Trauma of the urinary system and male genital system.

Seminar 6 – 2 hours

Urolithiasis – Clinical manifestations and diagnosis.

Seminar 7 – 2 hours

Urolithiasis – complications and treatment. Inflammatory diseases of the urinary system. – Classification and treatment. Cystitis. Urosepsis- Diagnostic panel and treatment.

Seminar 8 – 2 hours

Benign Prostatic Hyperplasia and Prostatic Carcinoma.

Seminar 9 – 2 hours

Renal parenchymal tumors, Upper urinary tract carcinoma and urinary bladder carcinoma.

Seminar 10 – 2 hours

Bladder carcinoma. Methods of urinary diversion after cystectomy.

Seminar 11 – 2 hours

Obstructive uropathy – Classification, clinical manifestation, diagnostic and surgical approach.
Acute and chronic renal failure with urological origin.

Seminar 12 – 2 hours

Diseases of the male genital system- phimosis, paraphimosis, Peyronie's disease, priapismus, penile carcinoma, testicular carcinoma.

Seminar 13 – 2 hours

Acute scrotum – injuries, inflammatory and non-inflammatory diseases. Inflammatory diseases of the prostate.

Seminar 14 – 2 hours

Urine fistulas. Neurogenic disorders of urination. Urodynamic investigation.

Seminar 15 – 2 hours

Male infertility. Erectile and ejaculation disorders.

References:

1. Smith & Tanagho's General Urology EIGHTEENTH EDITION
2. Campbell-Walsh UROLOGY Ninth Edition
3. The European Association of Urology (EAU) Pocket Guidelines 2020
4. LECTURES

Syllabus - UROLOGY

General Urology

1. Symptoms of Disorders of the Genitourinary Tract
2. Physical Examination of the Genitourinary Tract
3. Physiology and pathophysiology of the kidneys.
4. Laboratory tests in urology - urine, blood, ejaculate, prostate secretion. Tumor biomarkers and hormonal panel for examination
5. Microbiological tests in urology - urine, blood, ejaculate wound, prostate, urethral secretions
6. Functional methods for examination of the lower urinary tract (urodynamics).
7. Imaging methods in urology - X-ray (contrast and non-contrast), ultrasound diagnostics, CT, MRI
8. Functional methods for examination of the kidneys (quantitative, samples for dilution and concentration, clearance methods, glomerular filtration).
9. Instrumental methods for research in urology.
10. Biopsy methods for examination in urology.

11. Nuclear medical (radioisotope) tests in urology - isotope nephrogram, scintigraphy - kidney and bone, PET, PET / CT
12. Mechanism of normal urination. Urinary disorders (disorders of the act of urination).
13. Quantitative changes in urine.
14. Qualitative changes in urine - hematuria, proteinuria, pneumaturia, pyuria.
15. Chronic renal failure due to urological causes - presentation, diagnosis, treatment.
16. Acute renal failure due to urological causes - presentation, diagnostic treatment.
17. Urine retention - etiology, classification, pathogenesis, diagnosis, emergency methods of treatment. Catheterization of the bladder and suprapubic derivation of urine.
18. Urinary incontinence in men and women - etiology, classification, pathogenesis, diagnosis, treatment. Overactive bladder - definition, clinical signs and symptoms, behavior.
19. Anuria of urological origin - definition, classification, diagnosis, emergency behavior.
20. Obstructive uropathy - classification, diagnosis, treatment.
21. Hydronephrosis - definition, pathoanatomical changes, clinical picture, diagnosis, treatment.
22. Kidney transplantation.

Clinical Urology

1. Congenital anomalies of the kidneys and ureters.
2. Congenital anomalies of the bladder.
3. Induced abnormalities of the urethra.
4. Congenital diseases of the testicles, penis and scrotum.
5. Kidney stone disease - epidemiology, specific risk factors for lithogenesis, pathogenesis, types of stones according to chemical composition.
6. Kidney stone disease - clinical picture and diagnosis (surgical aspects).
7. Kidney stone disease - complications, modern methods of treatment (medical; surgical - open and minimally invasive surgery).
8. Urosepsis and septic (endotoxic shock) - definition, etiology, pathogenesis, types and behavior.
9. Injuries to the kidneys and ureters.
10. Bladder injuries.
11. Injuries to the urethra.
12. Injuries to the penis and scrotum
13. Tumors of the kidneys, renal pelvis and ureter.
14. Tumors of the bladder - classification, clinic and diagnosis.
15. Tumors of the bladder - treatment (surgical - methods for derivation of urine after cystectomy, post-adjutant).
16. Neoplasms of the penis.
17. Tumors of the testicles and epididymis.
18. Benign prostatic hyperplasia.
19. Prostate cancer - epidemiology, classification, clinical symptoms and signs, diagnosis, methods of treatment - surgical and alternative.
20. Acute scrotum syndrom of traumatic, inflammatory and non-inflammatory noxa.
21. Hydrocele and varicocele.
22. Some diseases of the penis - phimosis, induration of the penis, priapism, cavernitis and gangrene.
23. Male infertility. Sperm parameters - clinical interpretation Anatomical pathway for ejaculate transport.

24. Inflammatory diseases of the kidneys.
25. Inflammatory diseases of the bladder - etiology, classification, surgical aspects.
26. Inflammatory diseases of the prostate gland (acute and chronic / chronic pelvic pain syndrome) and urethra.
27. Tuberculosis of the kidneys, urinary tract and male reproductive system.
28. Disorder of male sexual function (Erectile dysfunction) - definition, types, behavior - medical and surgical.
29. Urinary fistulas.
30. Neurogenic disorders in urination - causes, types, complications, treatment