UNIVERSITÀ
DEGLI STUDI DI MILANO-BICOCCA

COURSE SYLLABUS

Nephrology

2223-4-H4102D029-H4102D111M

Aims

To provide evidence-based knowledge of the main medical diseases of the kidney and urinary tract.
Ability to define the degree of renal function, to understand the major lab and diagnostics tests and ability in defining a diagnostic pathway.
Knowledge of the main methods of renal replacement therapy: dialysis and transplantation.

At the end of the course the student will be able to:

1. Know aetiology, pathogenesis, clinical manifestations, complications and prognosis of the main renal diseases.
2. Evaluate correctly patient history and physical examination in order to classify the nephropathy.
3. Interpret lab tests and diagnostic investigations in order to diagnose kidney diseases.
4. Know the main pathological pictures of glomerulonephritis, vascular, tubulo-interstitial and cystic diseases of the kidney.
5. Know the complications of kidney and urinary tract diseases and the physiopathology and clinical aspects of renal failure, including renal replacement therapy (dialysis and transplantation).

Contents

To use the knowledge of Anatomy, Physiology, Biochemistry and others basic disciplines in dealing with organ and/or apparatus pathologies.
To be able to critically evaluate the commonly used diagnostic methods in medical practice.
To recognize the signs and symptoms of major diseases, to understand the results of laboratory and instrumental tests.
To know the pathogenesis and prognosis of the handled diseases.

Detailed program

DIAGNOSIS OF RENAL DISEASES
• Evaluation of renal function parameters (glomerular filtration, tubular function, renal blood flow), urine test and sediment
• Signs/symptoms of renal diseases: nephrological syndromes
• Diagnostic measures: ultrasound, xray, others
• Kidney biopsy

GLOMERULAR DISEASES (GN)
• Classification, aetiology, pathogenesis
• Primary GN (clinical manifestations and histology)
• Nephrotic and nephritic syndromes (aetiology, pathology and complications)
• Rapidly progressive glomerulonephritis
• Secondary GN (lupus, vasculitis, diabetes)

PLASMA CELL DYSCRASIAS
• Myeloma kidney, amyloidosis, monoclonal gammopathy of renal significance

VASCULAR NEPHROPATIES
• Nephrosclerosis
• Renal artery stenosis (renovascular hypertension): aetiology, pathogenesis, diagnosis, elements of suspicion)

TUBULO-INTERSTITIAL NEPHRITIS
• Acute and chronic tubulo-interstitial nephritis
• Reflux nephropathy

WATER AND ELECTROLYTES DISORDERS
• Sodium and fluid retention, oedema pathogenesis; volume depletion
• Hyponatremia and Hypernatremia
• Potassium and acid-base equilibrium disorders
• Disorders of calcium/phosphorus and Mg

KIDNEY AND URINARY TRACT INFECTION
• Acute and chronic pyelonephritis

MALFORMATIVE/HEREDITARY DISEASES
• Polycystic, medullary sponge, nephronophthisis

ACUTE KIDNEY INJURY
• Classification, aetiology and pathogenesis
• Clinical aspects, diagnosis and prevention
• acute kidney injury in critically ill patient

CHRONIC KIDNEY DISEASE
• Aetiology, physiopathology, metabolic alterations
• Prevention and monitoring: populations at risk, renal disease progression factors and measures to halt worsening
• Renal replacement therapy (haemodialysis, peritoneal dialysis, transplantation)

Gender differences in prevalence, clinical manifestations, outcome, treatment response of nephropathies and chronic kidney disease will be specifically addressed.

Palliative care for patients with advance chronic kidney disease and pain management in patients with chronic kidney disease will also be handled.

Prerequisites

Knowledge of Anatomy and Physiology of kidney and urinary tract

Teaching form

Frontal lessons with interactive presentation software, clinical cases discussion.
Lessons will also be recorded and the video lectures will be available on demand

Textbook and teaching resource

- Harrison's Principles of Internal Medicine Ed. McGraw Hill 19th edition;
- Cecil Textbook of Medicine, 25th Edition, 2016;
- Johnson R, Feehally J, Floege J, Tonelli M. Comprehensive Clinical Nephrology 6th Edition, Elsevier 2019.

Semester

second semester

Assessment method

See Endocrine Kidney and Urinary Tract Diseases course Syllabus.

The assessment of achieved objectives will be verified with written tests and oral exam. 30 single-answer questions with 4 answers of which only one exact (30 points) and oral exam (30 points).

Office hours

Contact the Professor by e-mail

Sustainable Development Goals

GOOD HEALTH AND WELL-BEING