

"IULIU HAȚIEGANU" UNIVERSITY OF MEDICINE AND PHARMACY CLUJ-NAPOCA

616.61  
M87

# NEPHROLOGY

## A student's guide

2018

Faculty of Medicine

AUTHOR: Diana Tania Luminița Moldovan



**UMF**

UNIVERSITATEA DE  
MEDICINĂ ȘI FARMACIE  
IULIU HAȚIEGANU  
CLUJ-NAPOCA

666.61  
M 87

**Universitatea de Medicină și Farmacie “Iuliu Hațieganu”  
Cluj-Napoca**

# **NEPHROLOGY**

**A student's guide**

**Author: Diana Tania Luminița  
Moldovan**

**Facultatea de Medicină**

**2018**

**756215**

SL2

# Contents

List of abbreviations / 7

1. Introduction / 9
  - 1.1. The kidney and urinary system anatomy / 9
  - 1.2. The kidney and urinary system physiology / 13
  - 1.3. General approach of renal disease / 15
2. Fluids and electrolytes abnormalities / 19
  - 2.1. Hyponatremia / 20
  - 2.2. Hypernatremia / 24
  - 2.3. Hypokalemia / 27
  - 2.4. Hyperkalemia / 30
  - 2.5. Hypercalcemia / 32
3. Acid–base disorders / 35
  - 3.1. Metabolic acidosis / 37
  - 3.2. Respiratory acidosis / 39
  - 3.3. Respiratory alkalosis / 40
  - 3.4. Metabolic alkalosis / 40
  - 3.5. Mixed acid-base disorders / 43
4. Glomerular diseases / 45
  - 4.1. Minimal change disease / 53
  - 4.2. Focal segmental glomerulosclerosis / 56
  - 4.3. Membranous nephropathy / 59
  - 4.4. Membranoproliferative glomerulonephritis / 63
  - 4.5. Immunoglobulin A nephropathy / 65
  - 4.6. Lupus nephritis / 69
  - 4.7. Rapidly proliferative glomerulonephritis / 73
  - 4.8. Renal amyloidosis / 78
  - 4.9. Infectious-related glomerulonephritis / 81
5. Diabetic kidney disease / 85
6. Tubulointerstitial diseases / 91
  - 6.1. Acute interstitial nephritis / 91
  - 6.2. Chronic tubulointerstitial nephropathies / 93
  - 6.3. Urinary tract infections / 98
  - 6.4. Renal lithiasis / 105
7. Hereditary kidney diseases / 111
  - 7.1. Autosomal dominant polycystic kidney disease / 111
  - 7.2. Alport syndrome / 119
  - 7.3. Fabry disease / 120
  - 7.4. Tuberous sclerosis complex / 120
8. Vascular nephropathies / 123
  - 8.1. Hypertensive nephrosclerosis / 124

- 8.2. Renal artery stenosis / 127
- 8.3. Acute hypertensive nephrosclerosis / 132
- 8.4. Thrombotic microangiopathies / 133
- 8.5. Cholesterol crystals emboli / 138
- 9. Renal disease in pregnancy / 139
- 10. Acute kidney injury / 143
  - 10.1. Definition / 143
  - 10.2. Staging / 143
  - 10.3. Etiology / 144
  - 10.4. Pathogenesis / 146
  - 10.5. Diagnosis / 147
  - 10.6. Management / 150
  - 10.7. Prognosis / 153
  - 10.8. Contrast-associated acute kidney injury / 154
- 11. Chronic kidney disease / 157
  - 11.1. Definition / 158
  - 11.2. Staging / 158
  - 11.3. Etiology / 158
  - 11.4. Assessment / 159
  - 11.5. Pathogenesis / 160
  - 11.6. Progression / 161
  - 11.7. Clinical manifestations / 162
  - 11.8. Complications / 163
  - 11.9. Management / 164
  - 11.10. Prognosis / 170
- 12. Renal replacement therapies / 171
  - 12.1. Hemodialysis / 172
  - 12.2. Peritoneal dialysis / 175
  - 12.3. Renal transplant / 180
- References / 187