

1 Mechanical Ventilation	1
1.1 Acute Respiratory Failure	1
1.2 Epidemiology	3
1.3 Ventilator Modes Nomenclature	4
1.4 Volume-Controlled (VC) Versus Pressure-Controlled (PC) Ventilation	5
1.5 Indications for Intubation and Mechanical Ventilation	7
1.6 Patient–Ventilator Interaction	9
1.7 Basics of Respiratory Physiology and Pathophysiological Issues	10
1.8 Pressures	15
1.9 Ventilator-Induced Lung Injury (VILI)	18
1.10 PEEP	23
1.11 Cardiovascular Effects of Positive Pressure Mechanical Ventilation (PPMV)	26
1.12 Conclusion for Overall Respirator Settings	36
1.13 Ventilation of Nonobstructive Acute Respiratory Failure Patients Not Suffering from ALI/ARDS	36
1.13.1 Summary, Invasive Mechanical Ventilation, Initial Settings in Non-ALI/ARDS Patients	39
1.13.2 Non-invasive Positive Pressure Ventilation (NIV) in Non-ALI/ARDS Patients	40
1.14 Mechanical Ventilation in COPD and Asthma	41
1.14.1 Respiratory Support in COPD Patients	45
1.14.2 Respiratory Support in Asthma Patients	48
1.15 Ventilator-Associated Pneumonia (VAP)	51
1.16 Weaning	53
References	61

2	Acute Respiratory Distress Syndrome (ARDS)	99
2.1	Definition	99
2.2	Epidemiology and Prognosis	102
2.3	Aetiology	103
2.4	Pathophysiology	104
2.5	Diagnosis and Clinical Features	110
2.6	Therapeutic Considerations	113
2.6.1	Respiratory Support/Mechanical Ventilation	113
2.6.2	Optimal PEEP	114
2.6.3	Permissive Hypercapnia	117
2.6.4	Treating Triggers	118
2.6.5	Respiratory Modes	119
2.6.6	Rescue Measures	120
2.6.7	Initial Ventilator Settings	123
2.6.8	Conservative (Restrictive) Fluid Management	124
2.6.9	Treatment of Acute Right Heart Dysfunction (RV-D)/Acute RV Failure (RV-F) (With the Focus on ARDS)	125
2.6.10	Extracorporeal Techniques	129
2.6.11	Miscellaneous	129
	References	129
3	Shock	159
3.1	Definition	159
3.2	Epidemiology	159
3.3	Aetiology	160
3.4	Pathophysiology	163
3.4.1	General Pathophysiological Aspects and Remarks	163
3.4.2	Compensatory Mechanisms and Shock Stages	170
3.5	Special Pathophysiology of	173
3.5.1	Cardiogenic Shock	173
3.5.2	Hypovolaemic Shock	179
3.5.3	Septic (Distributive–Vasodilative) Shock	181
3.6	Diagnostic and Clinical Issues	191
3.7	Management	197
3.7.1	General Approach	197
3.7.2	Vasopressor Application/Use	206
3.7.3	Cardiogenic Shock	210
3.7.4	Haemorrhagic Shock	215
3.7.5	Septic Shock	217
	References	226

4 Sepsis	273
4.1 Epidemiology	275
4.2 Pathophysiology and Pathogenesis of Sepsis	276
4.3 Clinical and Diagnostic Issues	286
4.4 Management	290
4.4.1 Overview	290
4.4.2 Special Issues	292
References	296
5 Acute Kidney Injury	313
5.1 Definition	313
5.2 Epidemiology	315
5.3 Aetiology	316
5.3.1 Pre-renal	317
5.3.2 Intrinsic, Intra-renal Causes	319
5.3.3 Postrenal Reasons	320
5.3.4 Doubts about Our Traditional Concept	322
5.4 Pathophysiology	323
5.5 Diagnostic Remarks	333
5.6 Management	336
5.6.1 Optimalization of Haemodynamics, Fluids and Vasopressive Agents	337
5.6.2 Loop Diuretics	343
5.6.3 Miscellaneous	344
5.6.4 Renal Replacement Therapy	345
References	349
6 Nutrition in Critical Illness	375
6.1 Practical Aspects	378
6.1.1 Enteral Nutrition Versus Parenteral Nutrition	378
6.1.2 Timing of Initiation of Enteral Nutrition	379
6.1.3 Dosing of Enteral Nutrition	379
6.1.4 Protein Requirements	381
6.1.5 Special Formulas	382
6.1.6 Management of Aspiration Risk	382
References	383
Appendix: Analgesia and Sedation in the Critically Ill Patients	391
References	400
Index	409