

Part I Epidemiology

1 Epidemiology	3
Snorre Sollid and Tor Ingebrigtsen	

Part II Classification and Assessment

2 Classification of Head Injury	11
Ramona Åstrand and Bertil Romner	
3 Primary Clinical Assessment	17
Jacob Bertram Springborg and Vagn Eskesen	

Part III Prehospital Management

4 Prehospital Management of Severe Traumatic Brain Injury (TBI)	25
Snorre Sollid	
5 What the Neurosurgeon Wants to Know: What, Who, When, and Where?	33
Knut Wester	
6 Transportation: Choice of Anaesthetic Drugs	37
Niels Juul	

Part IV Admission, Diagnostics and Planning

7 Trauma Team Alert	43
Christina Rosenlund	
8 The Trauma Team	45
Christina Rosenlund	
9 Trauma Protocol (ABCDE)	47
Christina Rosenlund	

10	Multi-trauma Triage	51
	Christina Rosenlund	
11	Cervical Spine Injury	53
	Christina Rosenlund	
12	Radiological Evaluation of Head Traumas	55
	Helle Wulf Eskildsen, Anna Tietze, and Vibeke Fink-Jensen	
13	Radiological Evaluation of Cervical Spine Traumas	63
	Helle Wulf Eskildsen, Anna Tietze, and Vibeke Fink-Jensen	
14	Blood Samples	69
	Rasmus Philip Nielsen	
15	Prognosis of Severe Traumatic Brain Injury: To Treat or Not to Treat, That Is the Question	73
	Magnus Olivecrona	
16	Potential Organ Donor: Organ Preservation	79
	Silvana Naredi	
 Part V Acute Surgical Treatment		
17	Basic Trauma Craniotomy	87
	Terje Sundstrøm and Knut Wester	
18	Surgical Management of Traumatic Intracranial Haematomas	91
	Terje Sundstrøm and Knut Wester	
19	Surgical Management of Penetrating Brain Injuries	101
	Terje Sundstrøm and Knut Wester	
20	Decompressive Craniectomy	105
	Pål André Rønning	
21	Skull Fractures	109
	Pål André Rønning	
22	Vessel Injuries	113
	Pål André Rønning	
23	Insertion of Intracranial Monitoring Devices	117
	Mikko Kauppinen	
24	Maxillofacial Fractures	123
	Ann Hermansson	

Part VI Peroperative Anaesthesia

25	Choice of Anaesthesia Drugs and Medications	129
	Bent Lob Dahl	
26	Blood Pressure, CO₂ and Oxygen Saturation	133
	Bent Lob Dahl	
27	Intracranial Pressure Reduction	139
	Bent Lob Dahl	

Part VII Monitoring in Neurointensive Care

28	Secondary Clinical Assessment	147
	Jacob Bertram Springborg and Vagn Eskesen	
29	A Neurological Wake-Up Test in the Neurointensive Care Unit: Pros and Cons	151
	Niklas Marklund	
30	Intracranial Pressure (ICP)	157
	Peter Reinstrup	
31	Brain Tissue Oxygen Monitoring	165
	Troels Halfeld Nielsen	
32	Measurement of Brain Temperature	169
	Peter Reinstrup and Carl-Henrik Nordström	
33	Monitoring Microdialysis	173
	Peter Reinstrup and Carl-Henrik Nordström	
34	Jugular Bulb Measurements (SJVO₂)	177
	Bo-Michael Bellander and Peter Reinstrup	
35	Cerebral Blood Flow (CBF) and Cerebral Metabolic Rate (CMR)	183
	Peter Reinstrup and Eric L. Bloomfield	
36	Transcranial Doppler (TCD)	193
	Peter Reinstrup, Jan Frennström, and Bertil Romner	
37	Near Infrared Spectroscopy (NIRS) or Cerebral Oximetry . . .	203
	Peter Reinstrup and Bertil Romner	
38	Clinical Neurophysiology: Evoked Potentials	207
	Birger Johnsen	

39	Clinical Neurophysiology: Continuous EEG Monitoring	211
	Birger Johnsen	
40	Radiological Follow-Up	215
	Leif Hovgaard Sørensen	
41	Neuromarkers	225
	Ramona Åstrand, Johan Undén, Peter Reinstrup, and Bertil Romner	
42	Cardiovascular Monitoring	231
	Karen-Lise Welling	
43	Pulmonary Monitoring	239
	Jacob Koefoed-Nielsen	
44	Renal Monitoring	243
	Jens Aage Kølsen-Petersen	
45	Neuroendocrine Monitoring	245
	Marianne Klose and Ulla Feldt-Rasmussen	
46	Microbiological Surveillance	253
	Mikala Wang and Jens Kjølsest Møller	
 Part VIII Treatment in Neurointensive Care		
47	Guidelines for Treatment of Patients with Severe Traumatic Brain Injury: Treatment Algorithms	257
	Niels Juul	
48	The Lund Therapy for Severe Head Trauma	263
	Per-Olof Grände and Peter Reinstrup	
49	Comparative Analysis of Various Guidelines for Treatment of Severe TBI	267
	Per-Olof Grände and Niels Juul	
50	Pharmacological Neuroprotection in Severe Traumatic Brain Injury	273
	Niklas Marklund	
51	Subacute Surgery in Neurointensive Care	281
	Terje Sundstrøm and Knut Wester	
52	CSF Drainage	285
	Lars-Owe D. Koskinen	

53	Hyperventilation	289
	Niels Juul	
54	Osmotherapy	293
	Jens Aage Kølsten-Petersen	
55	Barbiturates for ICP Management	303
	Mads Rasmussen	
56	Fluid Haemodynamics in Patients with Severe TBI	307
	Per-Olof Grände and Niels Juul	
57	Sedation: Including Pain Treatment and Withdrawal Symptoms	313
	Silvana Naredi	
58	Nutrition	317
	Anne Berit Guttormsen, Bram de Hoog, and Jennie Hernæs	
59	Management of External Drain-Related CNS Infection	323
	Mikala Wang and Jens Kjølsteth Møller	
60	Management of Other Infections	333
	Steinar Skrede	
61	Body Temperature in TBI Patients	339
	Per-Olof Grände and Bertil Romner	
62	Neuroendocrine Treatment	343
	Marianne Klose and Ulla Feldt-Rasmussen	
63	Mechanical Ventilation in NICU	347
	Jacob Koefoed-Nielsen	
64	Seizures	351
	Elisabeth Ronne-Engström	
65	Autonomic Dysfunction	357
	Christina Rosenlund	
66	Prophylaxis Against Venous Thromboembolism in Patients with Traumatic Brain Injury	363
	Morten Zebitz Steiness	
67	Brain Injury and the Haemostatic System	365
	Martin Engström	
68	Steroids	369
	Jens Jakob Riis	

Part IX Early Rehabilitation

69 Neurorehabilitation in Neurointensive Care. 375
Carsten Kock-Jensen and Leanne Enggaard Langhorn

Part X Outcome After Severe TBI

70 Outcome After Severe Traumatic Brain Injury (TBI). 383
Atle Ulvik and Reidar Kvåle

**71 Subacute MR Imaging: Diffuse Axonal Injury,
Brain Stem Lesions and Prognostic Factors. 389**
Toril Skandsen and Anne Vik

Part XI Research in the Neurointensive Care Unit

**72 The Neurointensive Care Unit as a Platform
for Advanced Clinical Research. 399**
Per Enblad, Tim Howells, and Lars Hillered

Index. 411