

Contents

List of Contributors page ix
Foreword xv
 Nick Fletcher
Preface to the Second Edition xvii
Link between Cardiothoracic Anaesthesia and Intensive Care: Which Patients are Admitted to Critical Care? xix
 Andrew Klein
Scoring Systems and Prognosis xxiii
 Allannah Barker and Sam Nashef
List of Abbreviations xxix

Section 1 – Diagnosis

1 **History and Examination** 1
 Lachlan Miles and Joseph E Arrowsmith

2 **Electrocardiography** 7
 David Begley

3 **Echocardiography in the Cardiothoracic Intensive Care Unit** 15
 Ghislaine Douflé and Andrew Roscoe

4 **Coronary Angiography** 22
 Unni Krishnan and Stephen P Hoole

5 **Bronchoscopy in the Cardiothoracic Intensive Care Unit** 28
 Sumit Chatterji and Pasupathy Sivasothy

6 **Microbiology Testing** 38
 A Ruth M Kappeler and Margaret I Gillham

7 **Radiology for Cardiothoracic Intensivists** 44
 Kristian H Mortensen, Peter A Barry and Deepa Gopalan

Section 2 – Practical Procedures

8 **Airway Management in Cardiothoracic Intensive Care: Intubation and Tracheostomy** 59
 Martin John and Christiana Burt

9 **Chest Drainage** 70
 Alia Noorani and Yasir Abu-Omar

10 **Cardiac Pacing and Defibrillation** 77
 Sérgio Barra and Patrick Heck

11 **Arterial and Venous Catheterisation and Invasive Monitoring** 86
 Stuart A Gillon, Nicholas A Barrett and Christopher IS Meadows

Section 3 – Therapeutic Intervention

12 **Antibiotics in the Cardiothoracic Intensive Care Unit** 95
 Oana Cole and Olly Allen

13 **Blood Products and Transfusion** 107
 Martin Besser

14 **Fluid Administration** 116
 Vasileios Zochios and Kamen Valchanov

15 **Inotropes and Vasopressors** 123
 Gabriel Kleinman, Shahzad Shaefi and Charles Shayan

16 **Sedation and Analgesia** 130
 Lachlan Miles and Barbora Parizkova

17 **Mechanical Ventilation** 142
 Anja Schneider and Erik Ortmann

Contents

- 18 **Renal Replacement Therapy** 149
 Jonah Powell-Tuck, Matt Varrier and Marlies Ostermann
- 19 **Nutritional Support for Cardiac Surgery and Intensive Care** 157
 Peter Faber
- 20 **Physiotherapy and Rehabilitation** 164
 Adam Baddeley and Allaina Eden
- Section 4 – Advanced Organ Support**
- 21 **Percutaneous Mechanical Circulatory Support** 173
 Evgeny Pavlushkov and Marius Berman
- 22 **Ventricular Assist Devices (VAD)** 180
 Harikrishna M Doshi and Steven SL Tsui
- 23 **Cardiac Extracorporeal Membrane Oxygenation** 193
 Jason M Ali and David P Jenkins
- 24 **Respiratory Extracorporeal Membrane Oxygenation in the Cardiothoracic Intensive Care Unit** 202
 Darryl Abrams and Daniel Brodie
- Section 5 – Acute Disorders**
- 25A **Resuscitation after Adult Cardiac Surgery** 211
 Jonathan H Mackay
- 25B **Out-of-Hospital Cardiac Arrest Patients in the Cardiothoracic Intensive Care Unit** 220
 Lisen Hockings and Sophia Fisher
- 26 **Airway Emergencies** 231
 Tom P Sullivan and Guillermo Martinez
- 27 **Chest Pain as a Symptom on the Cardiothoracic Intensive Care Unit** 241
 Will Davies
- 28 **Acute Dyspnoea and Respiratory Failure** 247
 Ken Kuljit Parhar
- 29 **Shock in the Cardiothoracic Intensive Care Unit** 256
 Fabio Guarracino and Rubia Baldassarri
- 30 **Systemic Hypertension in Cardiothoracic Critical Care** 263
 Antonio Rubino and Susan Stevenson
- 31 **Pulmonary Hypertension in the Cardiothoracic Intensive Care Unit** 272
 Mark Toshner and Joanna Pepke-Zaba
- 32 **The Infected Patient** 278
 Simon J Finney
- 33 **Seizures** 285
 Ari Ercole and Lara Prisco
- 34 **The Acute Abdomen in the Cardiac Intensive Care Unit** 294
 Simon JA Buczacki and Justin Davies
- 35 **Cardiothoracic Trauma** 301
 Alia Noorani and Ravi J De Silva
- 36 **The Bleeding Cardiac Surgical Patient** 307
 Jerrold H Levy, Kamrouz Ghadimi and Ian J Welsby
- Section 6 – Perioperative Care: The Patient Post Cardiac Surgery**
- 37 **Management after Coronary Artery Bypass Grafting Surgery** 313
 Sam Nashef and Paolo Bosco
- 38 **Intensive Care Unit Management Following Valve Surgery** 317
 Yasir Abu-Omar and Shakil Farid
- 39 **Pulmonary Endarterectomy Patients in Cardiothoracic Critical Care** 324
 Choo Yen Ng
- 40 **Heart Transplantation** 333
 Stephen J Pettit and Anna Kydd
- 41 **Lung Transplantation** 340
 JS Parmar
- 42 **Aortic Surgical Patients in the Intensive Care Unit** 347
 Pedro Catarino and Swetha Iyer
- 43 **Thoracic Surgical Patients** 356
 J Irons and S Ghosh

Section 7 – Disease Management in the Cardiothoracic Intensive Care Unit: Incidence; Aetiology; Diagnosis; Prognosis; Treatment

- 44 **Respiratory Disorders: Acute Respiratory Distress Syndrome** 365
 Alastair Proudfoot and Charlotte Summers
- 45 **Cardiovascular Disorders: the Heart Failure Patient in the Intensive Care Unit** 372
 Anna Kydd and Jayan Parameshwar
- 46 **Neurological Aspects of Cardiac Surgery** 380
 Max S Damian
- 47 **Postoperative Delirium** 392
 Makeida B Koyi, Joseph G Hobelmann and Karin J Neufeld
- 48 **Haematological Disorders and Cardiothoracic Intensive Care** 402
 Jerrold H Levy, Kamrouz Ghadimi and Ian Welsby
- 49 **Pregnancy and Cardiovascular Disorders** 408
 Kiran Salaunkey
- 50 **Paediatric Cardiac Intensive Care** 418
 Ajay Desai, Lidia Casanueva and Duncan Macrae
- 51 **Grown-up Congenital Heart Disease (GUCH) Patients in the Cardiothoracic Intensive Care Unit** 427
 Susanna Price and Niki Walker

- 52 **Difficult to Wean from Mechanical Ventilation Patients in the Cardiothoracic Intensive Care Unit** 434
 Michael G Davies

Section 8 – Provision and Delivery of Cardiothoracic Intensive Care

- 53 **Cardiothoracic Critical Care Nursing, Outreach and Follow-up** 441
 Jo-anne Fowles
- 54 **Systems and Processes in Cardiothoracic Critical Care** 445
 James Moore and Alain Vuylsteke
- 55 **Clinical Information Systems** 449
 Matthew Jones
- 56 **Medical Law and Ethics in the Cardiothoracic Intensive Care Unit** 456
 Oana Cole
- 57 **Training in Cardiothoracic Intensive Care** 462
 Amy Needham and Chinmay Padvardthan

Exercise Answers 467

Index 471

Colour plates are to be found between pages 230 and 231.