# Contents

List of Contributors page ix Preface – Jeffrey L. Saver and Graeme J. Hankey xiii

## Part I Foundations

- 1 **Stroke: The Size of the Problem** 1 Graeme J. Hankey
- 2 **Understanding Evidence** 10 Jeffrey L. Saver and Graeme J. Hankey

#### Part II Systems of Care

 Prehospital Stroke Care and Regionalized Stroke Systems 35
 Kori Sauser Zachrison and Lee
 H. Schwamm

4 **Organized Stroke Care** 59 Peter Langhorne

## Part III Acute Treatment of Ischaemic Stroke and Transient Ischaemic Attack

- Supportive Care during Acute Cerebral Ischaemia 77 Askiel Bruno, Subhashini Ramesh, and Jeffrey L. Saver
- 6 Reperfusion of the Ischaemic Brain by Intravenous Thrombolysis 98 Jeffrey L. Saver and Joanna Wardlaw
- 7 Reperfusion of the Ischaemic Brain by Endovascular Thrombectomy and Thrombolysis 127 Meng Lee and Jeffrey L. Saver
- 8 Collateral Flow Enhancement: Blood Pressure Lowering and Alteration of Blood Viscosity 146
   Else Charlotte Sandset and Eivind Berge

- Acute Antiplatelet Therapy for the Treatment of Ischaemic Stroke and Transient Ischaemic Attack 154
   Jeffrey L. Saver
- 10 Acute Anticoagulant Therapy for the Treatment of Acute Ischaemic Stroke and Transient Ischaemic Attack 179 Xinyi Leng and Lawrence K.S. Wong
- 11 Treatment of Brain Oedema 199 Jeffrey L. Saver and Salvador Cruz-Flores
- 12 Neuroprotection for Acute Brain Ischaemia 214 Nerses Sanossian and Jeffrey L. Saver

## Part IV Acute Treatment of Haemorrhagic Stroke

- 13 Acute Treatment of Intracerebral Haemorrhage 239
   Tom Moullaali, Rustam Al-Shahi Salman, and Craig Anderson
- 14 Acute Treatment of Subarachnoid Haemorrhage 260Sherri A. Braksick and Alejandro A. Rabinstein

### Part V Prevention

- 15 Prevention of Stroke by Lowering Blood Pressure 289
   Meng Lee, Jeffrey L. Saver, and Bruce Ovbiagele
- 16 **Prevention of Stroke by Lowering Blood Cholesterol Concentrations** 297 Maurizio Paciaroni

- Prevention of Stroke by Modification of Additional Vascular and Lifestyle Risk Factors 308
   Amytis Towfighi and Jeffrey L. Saver
- Drugs, Devices, and Procedural Therapies to Prevent Recurrent Cardiogenic Embolic
   Stroke 337
   Graeme J. Hankey
- Long-term Antithrombotic Therapy for Large and Small Artery Occlusive Disease 384 Graeme J. Hankey
- 20 Carotid and Vertebral Artery Revascularization 412 Mandy D. Müller, Leo H. Bonati, and Martin M. Brown
- 21 Cervical Artery Dissection and Cerebral Vasculitis 450
   Philippe A. Lyrer, Christopher Traenka, and Stefan T. Engelter
- 22 Prevention of Intracerebral and
  Subarachnoid Haemorrhage 463
  James P. Klaas and Robert D. Brown, Jr.

Part VI Stroke Rehabilitation and Recovery

- 23 Evidence-based Motor Rehabilitation after Stroke 485 Gert Kwakkel and Janne M. Veerbeek
- Language and Cognitive Rehabilitation after Stroke 501 Marian C. Brady and Jonathan J. Evans
- 25 Using Pharmacotherapy to Enhance Stroke Recovery 517 Larry B. Goldstein
- 26 Electrical and Magnetic Brain Stimulation to Enhance Post-stroke Recovery 532 Mark Parsons and Jodie Marquez

Index 551