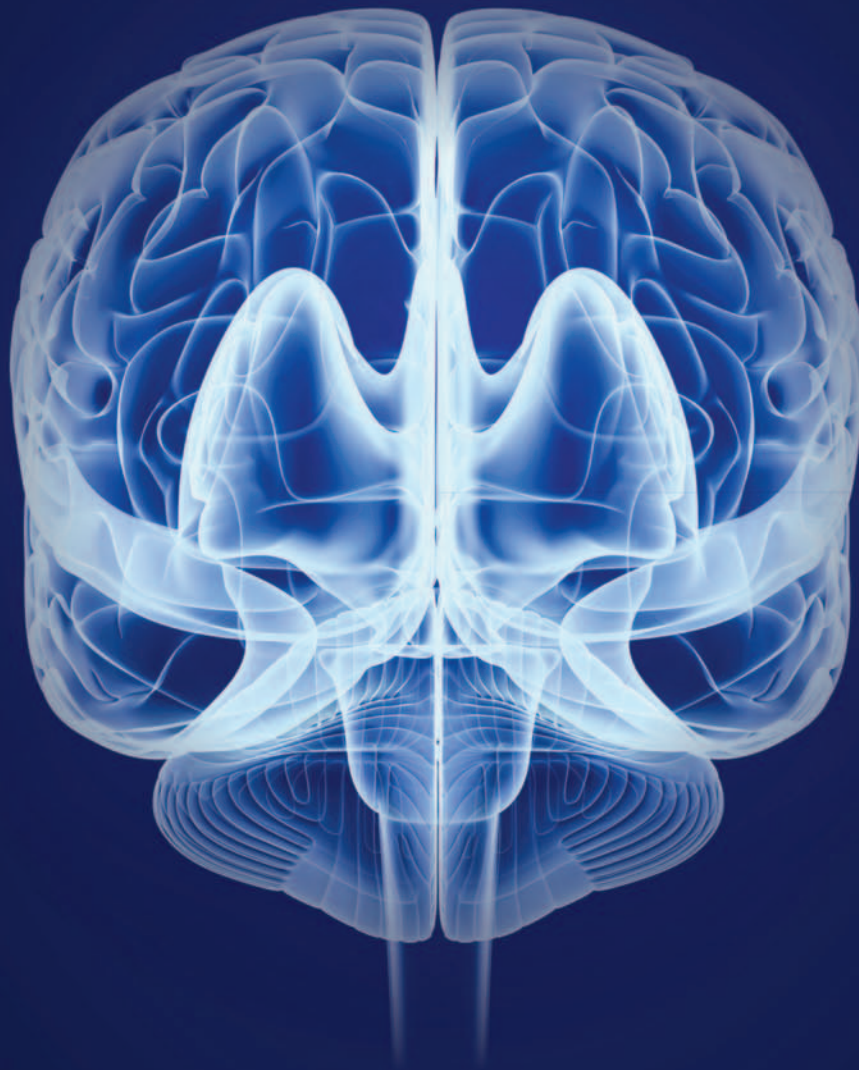


# Essentials of Neuroanesthesia



*Edited by*  
*Hemanshu Prabhakar*



# ESSENTIALS OF NEUROANESTHESIA

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# ESSENTIALS OF NEUROANESTHESIA

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*Edited by*

HEMANSHU PRABHAKAR

*Department of Neuroanaesthesiology and Critical Care*

*All India Institute of Medical Sciences*

*New Delhi, India*



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*Dedicated to my parents—Avinash and Kanti Prabhakar  
The best gifts they stored for me—Kavita and Hemant, who in turn gifted me Sunil and Deepali  
To those who mean the world to me—Pallavi, Anavi, and Amyra  
To Aishwarya, Avi, and Anav*

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# List of Contributors

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- M. Abraham** Max Hospital Panchsheel, New Delhi, India  
**R. Aggarwal** All India Institute of Medical Sciences, New Delhi, India  
**Z. Ali** SKIMS, Srinagar, India  
**S. Amudhan** NIMHANS, Bengaluru, India  
**M.-A. Babi** Duke University, Durham, NC, United States  
**S. Bansal** National Institute of Mental Health and NeuroSciences (NIMHANS), Bangalore, India  
**S.D. Bergese** Ohio State University, Columbus, OH, United States  
**H. Bhagat** Postgraduate Institute of Medical Education and Research, Chandigarh, India  
**S. Bharadwaj** NIMHANS, Bangalore, India  
**S.J. Bharti** AIIMS, New Delhi, India  
**S. Bhatnagar** AIIMS, New Delhi, India  
**P.U. Bidkar** JIPMER, Puducherry, India  
**F. Bilotta** Sapienza University of Rome, Rome, Italy  
**P.K. Bithal** AIIMS, New Delhi, India  
**V. Bonhomme** CHR Citadelle, Liege, Belgium  
**A. Borozdina** I.M. Sechenov First Moscow Medical University, Moscow, Russia  
**A. Defresne** CHR Citadelle, Liege, Belgium  
**S.K. Dube** All India Institute of Medical Sciences, New Delhi, India  
**M. Echeverría** Centro Médico Docente Paraíso, Maracaibo, Venezuela  
**H. El Beheiry** University of Toronto, Toronto, ON, Canada; Trillium Health Partners, Toronto, ON, Canada  
**S. Erb** University Hospital Basel, Basel, Switzerland  
**N. Fàbregas** Hospital Clinic Universitari, Barcelona, Spain  
**N. Fagoni** University of Brescia, Brescia, Italy  
**E. Farag** Cleveland Clinic Foundation, Cleveland, OH, United States  
**J. Fiorda-Diaz** Ohio State University, Columbus, OH, United States  
**P. Ganjoo** GB Pant Hospital, New Delhi, India  
**M. Gobbo** University of Brescia, Brescia, Italy  
**R. Gorji** Upstate Medical University, Syracuse, NY, United States  
**V.K. Grover** Postgraduate Institute of Medical Education and Research, Chandigarh, India  
**U. Grundmann** Saarland University Medical Center, Homburg/Saar, Germany  
**D. Gupta** Sanjay Gandhi Post Graduate Institute of Medical Sciences, Lucknow, India  
**N. Gupta** Indraprastha Apollo Hospital, New Delhi, India  
**R.G. Hahn** Södertälje Hospital, Södertälje, Sweden  
**N. Hassan** Government Gousia Hospital, Srinagar, India  
**M. Ida** Nara Medical University, Kashihara, Japan  
**M.L. James** Duke University, Durham, NC, United States  
**K. Jangra** Postgraduate Institute of Medical Education and Research, Chandigarh, India  
**M. Kalaivani** AIIMS, New Delhi, India  
**V.K. Kamal** AIIMS, New Delhi, India  
**A. Kannaujia** Sanjay Gandhi Post Graduate Institute of Medical Sciences, Lucknow, India  
**I. Kapoor** All India Institute of Medical Sciences, New Delhi, India  
**M. Kawaguchi** Nara Medical University, Kashihara, Japan  
**A.K. Khanna** Cleveland Clinic Foundation, Cleveland, OH, United States  
**S.A. Khan** Duke-NUS Medical School, Singapore, Singapore  
**K.M. Kla** Vanderbilt University Medical Center, Nashville, TN, United States  
**V. Krishnamoorthy** University of Washington, Seattle, WA, United States  
**D.K. Kulkarni** Nizam's Institute of Medical Sciences, Hyderabad, India  
**S. Lalwani** All India Institute of Medical Sciences, New Delhi, India  
**N. Latronico** University of Brescia, Brescia, Italy  
**L.A. Lee** Kadlec Regional Medical Center, Richland, WA, United States  
**A. Lele** University of Washington, Seattle, WA, United States  
**A.Yu Lubnin** Neurocritical Care of Burdenko Research Neurosurgical Institute, Ministry of Health, Moscow, Russia  
**A. Luthra** PGIMER, Chandigarh, India  
**C. Mahajan** AIIMS, New Delhi, India  
**S. Mahajan** Postgraduate Institute of Medical Education and Research, Chandigarh, India  
**P.H. Manninen** Toronto Western Hospital, Toronto, ON, Canada  
**M. Marda** Max Hospital Panchsheel, New Delhi, India  
**R. Mariappan** Christian Medical College, Vellore, India

- A. Marson** University of Liverpool, Liverpool, United Kingdom
- Y.N. Martin** Mayo Clinic, Rochester, MN, United States
- R. Mitra** Care Hospital, Bhubaneswar, India
- S. Mohapatra** AIIMS, New Delhi, India
- S. Moningi** Nizam's Institute of Medical Sciences, Hyderabad, India
- J.N. Monteiro** P.D. Hinduja Hospital and Medical Research Centre, Mumbai, India
- I. Naqash** SKIMS, Srinagar, India
- W.T. Nicholson** Mayo Clinic, Rochester, MN, United States
- C. Oetliker** University Hospital Basel, Basel, Switzerland
- D. Padmaja** Nizam's Institute of Medical Sciences, Hyderabad, India
- N.B. Panda** Post Graduate Institute of Medical Education and Research, Chandigarh, India
- M. Panebianco** University of Liverpool, Liverpool, United Kingdom
- J.J. Pasternak** Mayo Clinic College of Medicine, Rochester, MN, United States
- K.A. Popugaev** Federal Medical-Biological Agency, Ministry of Health, Moscow, Russia
- L. Porcella** Spedali Civili University Hospital, Brescia, Italy
- H. Prabhakar** All India Institute of Medical Sciences, New Delhi, India
- F. Rabai** University of Florida, Gainesville, FL, United States
- M. Radhakrishnan** National Institute of Mental Health and NeuroSciences, Bengaluru, India
- S. Rajan** Cleveland Clinic, Cleveland, OH, United States
- R. Ramani** University of Florida, Gainesville, FL, United States
- V.J. Ramesh** National Institute of Mental Health and NeuroSciences, Bengaluru, India
- S. Rao** Yale New Haven Hospital, New Haven, CT, United States
- G.P. Rath** All India Institute of Medical Sciences (AIIMS), New Delhi, India
- S. Sahu** Tata Main Hospital, Jamshedpur, India
- D. Saigal** University of Delhi, New Delhi, India
- L. Salvador** Consorcio Hospital General Universitario de Valencia, Valencia, Spain
- K. Sandhu** Max Superspeciality Hospital, New Delhi, India
- M.V.S. Satya Prakash** JIPMER, Puducherry, India
- M. Sethuraman** Sree Chitra Tirunal Institute for Medical Sciences and Technology, Trivandrum, India
- S. Sharma** All India Institute of Medical Sciences, New Delhi, India
- E.E. Sharpe** Mayo Clinic College of Medicine, Rochester, MN, United States
- M. Sidani** Upstate Medical University, Syracuse, NY, United States
- V. Singhal** Medanta (The Medicity), Gurgaon, India
- G. Singh** Christian Medical College, Vellore, India
- G.P. Singh** AIIMS, New Delhi, India
- S. Singh** SKIMS, Srinagar, India
- M.J. Souter** University of Washington, Seattle, WA, United States
- K. Sriganesh** NIMHANS, Bangalore, India
- S. Srivastava** Sanjay Gandhi Post Graduate Institute of Medical Sciences, Lucknow, India
- L.A. Steiner** University Hospital Basel, Basel, Switzerland
- N. Stoicea** Ohio State University, Columbus, OH, United States
- A. Swain** Tata Main Hospital, Jamshedpur, India
- M.S. Tandon** University of Delhi, New Delhi, India
- S.S. Thota** Upstate Medical University, State University of New York, Syracuse, NY, United States
- D.E. Traul** Cleveland Clinic, Cleveland, OH, United States
- S. Tripathy** All India Institute of Medical Sciences Bhubaneswar, Bhubaneswar, India
- G.S. Umamaheswara Rao** National Institute of Mental Health and NeuroSciences (NIMHANS), Bangalore, India
- A.D. Upadhyay** AIIMS, New Delhi, India
- L. Venkatraghavan** University of Toronto, Toronto, ON, Canada
- B. Vinay** Gulf Medical University, Ajman, United Arab Emirates
- T.L. Welch** Mayo Clinic College of Medicine, Rochester, MN, United States
- T.Y. Yeoh** Toronto Western Hospital, Toronto, ON, Canada
- J. Žurek** University Hospital Brno, Brno, Czech Republic

# Foreword

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There has been substantial flux in the field of neuroanesthesia over the past two decades. This followed what could be viewed as a relatively quiescent and narrowly focused period in neuroanesthesia. During the latter period much of the focus was on the roles of hypotension in aneurysm surgery, hyperventilation for head injury, anesthetics as cerebral protectants, and endless debates about intravenous versus inhaled anesthetics. More recently the purview of neuroanesthesia broadened substantially partly reflecting the huge expansion in the way patients with neurological diseases are managed. Patients are cared for not only in the traditional operating theater and intensive care unit but also in more complex ways inside and outside the operating theater. Examples include endovascular treatment of aneurysms, magnetic resonance imaging (MRI)- and computed tomography (CT)-guided surgery, minimally invasive approaches such as deep brain stimulation (DBS), the growth in neurological monitoring from the awake patient to complex electrophysiology, and the ever increasingly aggressive spine reconstructions. The neuroanesthesiologist of today is not only a traveler going to different parts of the hospital but needs to be an expert in patient management in all the newer scenarios. Furthermore, this expansion of the repertoire requires greater refinement in our intimate knowledge of how drugs and techniques may enhance or adversely affect the nuanced neurosurgical outcomes.

Given the above changes in practice, the novice and experienced neuroanesthesia practitioners now, more than ever, need an authoritative text not just full of “book knowledge” but written by those who on a daily basis meld the academic with the practical. To his credit, Hemanshu Prabhakar has brought together an accomplished group of international experts to contribute to this excellent volume. Their writing is authoritative and up to date while being practical and easy to understand. There is no doubt that this book is a very useful contribution to the modern practice of neuroanesthesia.

**Adrian W. Gelb**  
*Distinguished Professor*  
*Department of Anesthesia and Perioperative Care*  
*University of California*  
*San Francisco*

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# Preface

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Neuroanesthesia is growing fast as a superspecialty as more and more research is being conducted to improve the practice. The focus is now not restricted to the *bench* but has also extended to the *bedside*. There is a need to have a volume that provides a comprehensive view of various topics and issues related to neuroanesthesia. This book provides easy understanding of anesthesia related to neurological sciences. This book will be useful for any medical practitioner associated with neurosurgical and allied branches such as neurology and neuroradiology. This book also caters to the needs of all those anesthetists who practice neuroanesthesia but do not have a formal training in it. It will provide a quick and easy access to understand neuroanesthesia. This book will provide an insight into all possible aspects of anesthetic management of neurosurgical and neurologic patients. This book has been written mainly for the residents and students appearing for examination and anesthetists practicing neuroanesthesia. This book includes the basic sciences such as anatomy, physiology, and pharmacology related to brain and spinal cord. This book also provides an understanding of related issues such as palliative care, evidence-based practice of neuroanesthesia, sterilization techniques, and ethical issues.

This book covers all topics related to neuroanesthesia and provides complete knowledge about brain and spinal cord. The book includes chapters related to allied specialties such as critical care, neurology, and neuroradiology. This book also contains a section on biostatistics, which would be extremely useful to residents and trainees who have to submit dissertation or thesis during their course.

This book contains pieces of information that have been brought together, which may have otherwise been available in different books.

I am grateful to all my authors across the globe, from as many as 14 different countries. The knowledge and information shared by the authors through different chapters is the representation of the global practice of neuroanesthesia and not limited to geographical boundaries. I sincerely hope this endeavor will improve our knowledge in the management of neurologically compromised patients and bring about an improved patient care.

**Hemanshu Prabhakar**

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