# Contents

**List of contributors**  page vii  
**Preface**  xi  

## Section 1 – Newborn and Infant Physiology for Anesthetic Management

1. **The Term Infant**  
   Mary Ellen McCann

2. **The Preterm Infant**  
   Lauren R. Kelly Ugarte and Thomas J. Mancuso

3. **Origin of the NICU**  
   Amy Vinson

4. **Hemodynamics in the Infant**  
   Viviane G. Nasr and James A. DiNardo

5. **Measures of Carbon Dioxide**  
   Lawrence Rhein

6. **Glucose Control**  
   Monica Hoagland

7. **Oxygen Management: Concerns About Both Hyperoxia and Hypoxia in Neonates During Critical Care and Intraoperatively**  
   Augusto Sola

8. **Temperature Control**  
   Benjamin Kloesel and Laura Downey

9. **Neonatal Resuscitation**  
   Monica E. Kleinman

10. **Congenital Abnormalities and Syndromes**  
    Katherine R. Gentry and Anne M. Lynn

11. **Myopathies of the Newborn**  
    Vincent Hsieh and Phil G. Morgan

## Section 2 – Newborn and Infant Anesthesia

12. **Preoperative Preparation**  
    Lynne R. Ferrari

13. **Developmental Pharmacology: The Neonate**  
    Cynthia Tung and Robert S. Holzman

14. **The Newborn Airway**  
    Shivani S. Patel and Narasimhan Jagannathan

15. **Fluid and Transfusion Management**  
    Justin Long, Tiffany Frazee, and Hubert Benzon

16. **Neonatal Ventilation Strategies**  
    Gerhard K. Wolf

17. **Anesthetic-Induced Neurotoxicity**  
    Dusica Bajic and Sulpicio G. Soriano

18. **New Anesthetic Agents on the Horizon**  
    Thomas Weismueller and Kai Matthes

19. **Monitoring of the Newborn and Young Infant Under Anesthesia**  
    Michael R. King, Samuel Rodriguez, and Kathleen Chen

## Section 3 – Specific Newborn and Infant Procedures

20. **Anesthesia for Neurosurgical Procedures**  
    Roby Sebastian and Craig D. McClain

21. **Anesthesia for Otolaryngologic Procedures in Infants and Neonates**  
    T. Anthony Anderson, Richard Anderson, and Charles Nargozian
Table of Contents

Contents

22  Anesthesia for Plastic Surgery  211
    Petra M. Meier

23  Anesthesia for Abdominal Wall Reconstruction Procedures  233
    Ellen Choi and Samuel H. Wald

24  Anesthesia for Intra-Abdominal Procedures  242
    Raymond Park and Edward Cooper

25  Anesthesia for Urologic Surgery  252
    Deepa Kattail, Jessica A. George, and Myron Yaster

26  Anesthesia for Thoracic Surgery  264
    Cornelius A. Sullivan

27  Congenital Diaphragmatic Hernia  276
    Elizabeth C. Eastburn and Bridget L. Muldowney

28  Congenital Heart Disease in the Neonate and Infant: Cardiac Catheterization and Cardiac Surgery  280
    Morgan L. Brown, James A. DiNardo, and Kirsten C. Odegard

29  Noncardiac Surgery in Neonates and Infants With Cardiac Disease  302
    Annette Y. Schure

30  Neonatal and Infant Tumors  321
    Laura H. Leduc

31  Anesthesia for Transplant Surgery  332
    Evan Burke and Franklyn Cladis

32  Anesthesia for Interventional Radiology Procedures  340
    Mary Landrigan-Ossar

33  Anesthesia for Conjoined Twins  347
    Philip D. Bailey and Lynne G. Maxwell

34  Anesthesia for Fetal Surgery  354
    Linda A. Bulich, Arielle Y. Mizrahi-Arnaud, and Kha M. Tran

Section 4 – Pain Management and Other Newborn and Infant Anesthesia Concerns

35  Pain Management in Neonates and Infants  369
    Christine Greco and Charles Berde

36  Regional Anesthesia in Neonates and Infants  382
    Karen Boretsky

37  Procedural Sedation  398
    Mary Ellen McCann and Christine Greco

38  Ambulatory Anesthesia in Infants  405
    Sharon Redd and Ethan Sanford

39  Apnea and Bradycardia  410
    Puneet Sayal and Samuel Rodriguez

40  Neonatal Outcomes  415
    Joseph P. Cravero

41  Research on Newborns and Infants  426
    Patcharee Sriswasdi

Index  439