

Contents

VOLUME 1

Part 1: The Field of Neonatal-Perinatal Medicine

- 1 Growth of Neonatal Perinatal Medicine—A Historical Perspective, 2**
Tonse N. K. Raju
- 2 Epidemiology for Neonatologists, 18**
Andrea N. Trembath
- 3 Medical Ethics in Neonatal Care, 25**
Naomi T. Laventhal and Jonathan M. Fanaroff
- 4 Legal Issues in Neonatal-Perinatal Medicine, 47**
Jonathan M. Fanaroff and Robert Turbow
- 5 Evaluating and Improving the Quality and Safety of Neonatal Intensive Care, 67**
Jochen Profit, Henry C. Lee, Jeffrey B. Gould, and Jeffrey D. Horbar
- 6 Simulation and Debriefing in Neonatal-Perinatal Medicine, 102**
Louis P. Halamek
- 7 Practicing Evidence-Based Neonatal-Perinatal Medicine, 113**
Suzanne M. Lopez and Jon E. Tyson
- 8 Perinatal and Neonatal Care in Developing Countries, 120**
Waldemar A. Carlo
- 9 Social and Economic Contributors to Neonatal Outcome in the United States, 140**
Renate D. Savich and Mobolaji Famuyide

Part 2: The Fetus

- 10 Genetic Aspects of Perinatal Disease and Prenatal Diagnosis, 154**
Susan J. Gross and Ciprian P. Gheorghe
- 11 Perinatal Ultrasound, 174**
Noam Lazebnik, Nancy E. Judge, and Pe'er Dar
- 12 Estimation of Fetal Well-Being, 210**
David N. Hackney
- 13 Surgical Treatment of the Fetus, 223**
Jarrett Moyer, Corey W. Iqbal, Shinjiro Hirose, and Hanmin Lee
- 14 Adverse Exposures to the Fetus and Neonate, 239**
Alison J. Falck, Sandra Mooney, and Cynthia F. Bearer
- 15 Intrauterine Growth Restriction, 260**
Alison Chu and Sherin U. Devaskar
- 16 Developmental Origins of Adult Health and Disease, 274**
Josephine M. Enciso and Sherin U. Devaskar

Part 3: Pregnancy Disorders and Their Impact on the Fetus

- 17 Hypertensive Disorders of Pregnancy, 288**
Arun Jeyabalan
- 18 Pregnancy Complicated by Diabetes Mellitus, 304**
Isaac Blickstein, Sharon Perlman, Yenon Hazan, and Eric S. Shinwell
- 19 Obstetric Management of Prematurity, 312**
Maged M. Costantine, Antonio Saad, and George Saade

- 20 Fetal Effects of Autoimmune Disease, 346**
Isaac Blickstein and Calanit Hershkovich-Shporen
- 21 Obstetric Management of Multiple Gestation and Birth, 355**
Isaac Blickstein and Eric S. Shinwell
- 22 Post-Term Pregnancy, 364**
Isaac Blickstein and Orna Flidel Rimon
- 23 Immune and Nonimmune Hydrops Fetalis, 371**
Pamela M. Simmons and Everett F. Magann
- 24 Amniotic Fluid Volume, 386**
Pamela M. Simmons and Everett F. Magann
- 25 Perinatal Infections and Chorioamnionitis, 404**
Richard Polin and Tara M. Randis
- 26 Placental Pathology, 415**
Raymond W. Redline

Part 4: The Delivery Room

- 27 Anesthesia for Labor and Delivery, 424**
McCallum R. Hoyt
- 28 Physical Examination of the Newborn, 440**
Tom Lissauer and Anne Hansen
- 29 Birth Injuries, 458**
Preetha A. Prasad, Miriam N. Rajpal, Henry H. Mangurten, and Bhagya I. Puppala
- 30 Congenital Anomalies, 489**
Anna L. Mitchell

Part 5: Resuscitation of the Newborn

- 31 Overview and Initial Management of Delivery Room Resuscitation, 516**
Jay P. Goldsmith
- 32 Role of Positive Pressure Ventilation in Neonatal Resuscitation, 530**
Louise Owen and Peter Davis
- 33 Oxygen Therapy in Neonatal Resuscitation, 543**
Maximo Vento
- 34 Chest Compression, Medications, and Special Problems in Neonatal Resuscitation, 552**
Vishal Kapadia and Myra Wyckoff

Part 6: The Physical Environment in Neonatal Care

- 35 Thermal Environment of the Intensive Care Nursery, 566**
Johan Ågren
- 36 Optimization of the NICU Environment, 577**
Liisa Lehtonen and Robert White

Part 7: Provisions for Neonatal Care

- 37 Biomedical Engineering Aspects of Neonatal Cardiorespiratory Monitoring, 596**
Juliann M. Di Fiore
- 38 Diagnostic Imaging of the Neonate, 608**
Sheila C. Berlin
- 39 Anesthesia in the Neonate, 634**
John E. Stork and Shelley Ohliger
- 40 The Late Preterm Infant, 654**
Kimberly V. Parsons and Lucky Jain
- 41 Nutrient Requirements/Nutritional Support in Premature Neonate, 670**
Brenda B. Poindexter and Camilia R. Martin
- 42 Support for the Family, 690**
Susan Hatters Friedman, Frances Thomson-Salo, and A. Rebecca Ballard

Part 8: Developmental Pharmacology

- 43 Principles of Drug Use in the Fetus and Neonate, 704**
Jacquelyn D. McClary
- 44 Principles of Drug Use During Lactation, 717**
Jacquelyn D. McClary
- 45 Pharmacokinetics in Neonatal Medicine, 722**
Kelly C. Wade
- 46 Infants of Substance-Using Mothers, 735**
Mark L. Hudak

Part 9: The Immune System

- 47 Developmental Immunology, 752**
John T. Benjamin and Akhil Maheshwari
- 48 Postnatal Bacterial Infections, 789**
Frank Esper

49 Fungal and Protozoal Infections of the Neonate, 809*David A. Kaufman and Paolo Manzoni***50 Viral Infections in the Neonate, 844***Jill E. Baley and Blanca E. Gonzalez***Part 10: The Central Nervous System**

51 Normal and Abnormal Brain Development, 914*Pierre Gressens, Sandrine Passemard, and Petra S. Hüppi***52 White Matter Damage and Encephalopathy of Prematurity, 947***Petra S. Hüppi and Pierre Gressens***53 Intracranial Hemorrhage and Vascular Lesions in the Neonate, 970***Linda S. de Vries***54 Hypoxic–Ischemic Encephalopathy, 989***Floris Groenendaal and Linda S. de Vries***55 Seizures in Neonates, 1015***Terrie E. Inder***56 Hypotonia and Neuromuscular Disease in the Neonate, 1044***Nancy Bass***57 Intracranial and Calvarial Disorders, 1060***Krystal Tomei and Mickey Smith***58 Spinal Dysraphisms, 1073***Byron Hills and Krystal Tomei***59 Hearing Loss in the Newborn Infant, 1081***Betty Vohr***60 Early Childhood Neurodevelopmental Outcomes of High-Risk Neonates, 1091***Deanne E. Wilson-Costello and Allison H. Payne***61 The Role of Neonatal Neuroimaging in Predicting Neurodevelopmental Outcomes of Preterm Neonates, 1110***Susan R. Hintz and Nehal A. Parikh***VOLUME 2****Part 11: The Respiratory System**

62 Lung Development and Maturation, 1124*Suhas G. Kallapur and Alan H. Jobe***63 Assessment of Neonatal Pulmonary Function, 1143***Juliann M. Di Fiore and Waldemar A. Carlo***64 Respiratory Distress Syndrome in the Neonate, 1159***Megan Lagoski, Aaron Hamvas, and Jennifer A. Wambach***65 Assisted Ventilation of the Neonate and Its Complications, 1174***Steven M. Donn and Mohammad A. Attar***66 Neonatal Respiratory Disorders, 1203***Moira A. Crowley***67 Neonatal Apnea and the Foundation of Respiratory Control, 1231***Mary Elaine Patrinós***68 Upper Airway Lesions in the Neonate, 1244***Todd D. Otteson and Tammy Wang***69 Bronchopulmonary Dysplasia in the Neonate, 1256***Eduardo H. Bancalari and Deepak Jain***70 Therapy for Cardiorespiratory Failure in the Neonate, 1270***Eileen K. Stork***Part 12: The Cardiovascular System**

71 Cardiac Embryology, 1292*Stephanie M. Ford, Michiko Watanabe, and Eric J. Devaney***72 Pulmonary Vascular Development, 1306***Robin H. Steinhorn***73 Prenatal Diagnosis of Congenital Heart Disease, 1320***James Strainic, Corey Stiver, and Sarah Plummer***74 Patent Ductus Arteriosus, 1334***William E. Benitz and Shazia Bhombal***75 Congenital Defects of the Cardiovascular System, 1342***Sanmit K. Basu and Nancy C. Dobrolet***76 Cardiovascular Problems of the Neonate, 1364***Christina M. Phelps and Jill Shivapour***77 Disorders of Cardiac Rhythm and Conduction in Newborns, 1375***Bryan Cannon and Christopher S. Snyder*

78 Neonatal Management of Congenital Heart Disease, 1393

Martin L. Bocks, Brian A. Boe, and Mark E. Galantowicz

Part 13: The Blood and Hematopoietic System

79 Hematologic and Oncologic Problems in the Fetus and Neonate, 1416

John Letterio, Irina Pateva, Agne Petrosiute, and Sanjay Ahuja

80 Blood Component Therapy for the Neonate, 1476

Cyril Jacquot, Yunchuan Delores Mo, and Naomi L. C. Luban

Part 14: The Gastrointestinal Tract

81 Development of the Neonatal Gastrointestinal Tract, 1506

Michael Dingeldein

82 Gastrointestinal Reflux and Motility in the Neonate, 1513

Anna Maria Hibbs

83 Disorders of Digestion in the Neonate, 1522

Catherine Larson-Nath, Bhaskar Gurram, and Gisela Chelimsky

84 Selected Gastrointestinal Anomalies in the Neonate, 1541

Michael Dingeldein

85 Neonatal Necrotizing Enterocolitis, 1571

Oleksandr Kudin and Josef Neu

Part 15: Metabolic and Endocrine Disorders

86 Disorders of Carbohydrate Metabolism in the Neonate, 1584

Meena Garg and Sherin U. Devaskar

87 Disorders of Calcium, Phosphorus, and Magnesium Metabolism in the Neonate, 1611

Steven A. Abrams and Dov Tiosano

88 Thyroid Disorders in the Neonate, 1643

Janet Chuang and Iris Gutmark-Little

89 Disorders of Sex Development, 1665

Julia Catherine Sorbara and Diane Katherine Wherrett

90 Inborn Errors of Metabolism, 1706

Laura L. Konczal and Arthur B. Zinn

Part 16: Neonatal Jaundice and Liver Disease

91 Neonatal Jaundice and Liver Diseases, 1788

Michael Kaplan, Ronald J. Wong, Jennifer C. Burgis, Eric Sibley, and David K. Stevenson

Part 17: The Kidney and Urinary Tract

92 Fluid, Electrolytes, and Acid-Base Homeostasis, 1854

Katherine MacRae Dell

93 The Kidney and Urinary Tract of the Neonate, 1871

Beth A. Vogt and Tamar Springel

Part 18: The Skin

94 The Skin of the Neonate, 1898

Vivek Narendran

Part 19: The Eye

95 Examination and Common Problems in the Neonatal Eye, 1934

Faruk H. Örgü

96 Retinopathy of Prematurity, 1970

Ye Sun, Ann Hellström, and Lois E. H. Smith

Part 20: Neonatal Orthopedics

97 Musculoskeletal Disorders in Neonates, 1980

Raymond W. Liu and George H. Thompson

98 Bone and Joint Infections in Neonates, 1989

Allison Gilmore and George H. Thompson

99 Congenital Abnormalities of the Upper and Lower Extremities and Spine, 1995

Jochen P. Son-Hing and George H. Thompson

Appendices

Appendix A Therapeutic Agents, 2018

Jacquelyn D. McClary

Appendix B Tables of Normal Values, 2028

Mary L. Nock and Arielle L. Olicker

Appendix C Schedule for Immunization of Preterm Infants, 2067

Jill E. Baley

Index, I1