

Preface, ix
List of Contributors, xi
Video Table of Contents, xxi

VOLUME 1: PRINCIPLES OF DIAGNOSIS

PART I Common Neurological Problems

- 1 **Diagnosis of Neurological Disease, 1**
Joseph Jankovic, John C. Mazziotto, Nancy J. Newman, Scott L. Pomeroy
- 2 **Episodic Impairment of Consciousness, 8**
Daniel Winkel, Dimitri Cassimatis
- 3 **Falls and Drop Attacks, 17**
Bernd F. Remler, Hatim Attar
- 4 **Delirium, 23**
Mario F. Mendez, Oleg Yerstein
- 5 **Stupor and Coma, 34**
Joseph R. Berger, Raymond Price
- 6 **Prolonged Comatose States and Brain Death, 52**
Eelco F.M. Wijdicks
- 7 **Intellectual and Memory Impairments, 58**
Howard S. Kirshner, Katherine A. Gifford
- ▶ 8 **Global Developmental Delay and Regression, 67**
Rachel Goode, Alice Lawrence, Tyler Reimschisel
- 9 **Behavior and Personality Disturbances, 75**
Carissa Gehl, Jane S. Paulsen
- 10 **Depression and Psychosis in Neurological Practice, 97**
David L. Perez, Evan D. Murray, Brent P. Forester, Bruce H. Price
- 11 **Limb Apraxias and Related Disorders, 120**
Mario F. Mendez, Leila Parand
- 12 **Agnosias, 127**
Howard S. Kirshner
- 13 **Aphasia and Aphasic Syndromes, 133**
Howard S. Kirshner, Stephen M. Wilson
- 14 **Dysarthria and Apraxia of Speech, 149**
Howard S. Kirshner
- 15 **Neurogenic Dysphagia, 152**
Delaram Safarpour, Kaveh Sharzehi, Ronald F. Pfeiffer
- 16 **Neuro-Ophthalmology: Afferent Visual System, 164**
Matthew J. Thurtell, Sashank Prasad, Robert L. Tomsak
- 17 **Pupillary and Eyelid Abnormalities, 191**
Matthew J. Thurtell, Janet C. Rucker
- ▶ 18 **Neuro-Ophthalmology: Ocular Motor System, 201**
Janet C. Rucker, Patrick J.M. Lavin
- 19 **Disturbances of Smell and Taste, 241**
Richard L. Doty, Steven M. Bromley
- 20 **Cranial and Facial Pain, 248**
Jerry W. Swanson, J.D. Bartleson
- ▶ 21 **Brainstem Syndromes, 255**
Devin D. Mackay, Michael Wall
- ▶ 22 **Neuro-Otology: Diagnosis and Management of Neuro-Otological Disorders, 267**
Kevin A. Kerber, Robert W. Baloh
- ▶ 23 **Cerebellar Ataxia, 288**
Sheng-Han Kuo, Chih-Chun Lin, Tetsuo Ashizawa

- 24 **Diagnosis and Assessment of Parkinson Disease and Other Movement Disorders, 310**
Joseph Jankovic, Anthony E. Lang
- 25 **Gait Disorders, 334**
Philip D. Thompson, John G. Nutt
- 26 **Hemiplegia and Monoplegia, 345**
E. Lee Murray, Karl E. Misulis
- 27 **Paraplegia and Spinal Cord Syndromes, 356**
Bruce H. Dobkin
- ▶ 28 **Proximal, Distal, and Generalized Weakness, 362**
Komal T. Sawlani, Christopher D. Geiger
- 29 **Muscle Pain and Cramps, 379**
Leo H. Wang, Glenn Lopate
- 30 **Hypotonic (Floppy) Infant, 388**
W. Bryan Burnette
- 31 **Sensory Abnormalities of the Limbs, Trunk, and Face, 397**
E. Lee Murray, Karl E. Misulis
- 32 **Arm and Neck Pain, 407**
Michael Ronthal
- 33 **Lower Back and Lower Limb Pain, 417**
E. Lee Murray, Karl E. Misulis

PART II Neurological Investigations and Interventions

SECTION A General Principles

- 34 **Investigations in the Diagnosis and Management of Neurological Disease, 427**
Joseph Jankovic, John C. Mazziotto, Nancy J. Newman, Scott L. Pomeroy

SECTION B Clinical Neurophysiology

- ▶ 35 **Electroencephalography and Evoked Potentials, 430**
Cecil D. Hahn, Ronald G. Emerson
- ▶ 36 **Clinical Electromyography, 447**
Bashar Katirji
- 37 **Extracranial Neuromodulation, 472**
David H. Benninger, Zhen Ni, Mark Hallett
- ▶ 38 **Intracranial Neuromodulation, 483**
Ryan Barmore, Zhongxing Peng-Chen, Abhay Kumar, Michael S. Okun
- 39 **Intraoperative Monitoring, 492**
Marc R. Nuwer

SECTION C Neuroimaging

- 40 **Structural Imaging Using Magnetic Resonance Imaging and Computed Tomography, 496**
Joseph C. Masdeu, Bela Ajtai, Alireza Faridar
- 41 **Vascular Imaging: Computed Tomographic Angiography, Magnetic Resonance Angiography, and Ultrasound, 547**
Peter Adamczyk, David S. Liebeskind

- 42 Functional and Molecular Neuroimaging, 576**
*Karl Herholz, Stefan Teipel, Sabine Hellwig, Sönke Langner,
 Michel Rijntjes, Stefan Klöppel, Cornelius Weiller,
 Philipp T. Meyer*
- 43 Ocular Functional and Structural Investigations, 601**
Robert Mallery, Devin Mackay, Sashank Prasad

SECTION D Clinical Neurosciences

- 44 Neuropsychology, 614**
Jane S. Paulsen, Carissa Gehl
- 45 Neurourology, 633**
Jalesh N. Panicker, Ranan DasGupta, Amit Batla
- 46 Sexual Dysfunction in Neurological Disorders, 652**
Frédérique Courtois, Dany Cordeau
- 47 Neuroepidemiology, 666**
Mitchell T. Wallin, Kathryn C. Fitzgerald
- 48 Clinical Neurogenetics, 681**
Brent L. Fogel, Daniel H. Geschwind
- 49 Neuroimmunology, 709**
Tanuja Chitnis, Samia J. Khoury
- 50 Neuroendocrinology, 730**
Paul E. Cooper, Stan H.M. Van Uum

VOLUME 2: NEUROLOGICAL DISORDERS AND THEIR MANAGEMENT

PART III Neurological Diseases and Their Treatment

- 51 Management of Neurological Disease, 748**
*Joseph Jankovic, John C. Mazziotto, Nancy J. Newman,
 Scott L. Pomeroy*
- 52 Pain Management, 753**
Pradeep Dinakar
- 53 Neurointensive Care, 776**
Alejandro A. Rabinstein, Sherri A. Braksick
- 54 Principles of Neuroendovascular Therapy, 793**
*Thanh N. Nguyen, Tudor G. Jovin, Raul G. Nogueira,
 Osama O. Zaidat*

SECTION B Neurological Complications of Systemic Disease

- 55 Neurological Rehabilitation, 819**
Bruce H. Dobkin
- 56 Transition to Adult Care for Youth with Chronic Neurological Disorders, 850**
Peter Camfield, Carol Camfield
- 57 Palliative and End-of-Life Care in Neurological Disease, 856**
Maisha T. Robinson, Claire J. Creutzfeldt
- 58 Neurological Complications of Systemic Disease: Adults, 862**
S. Andrew Josephson, Michael J. Aminoff
- 59 Neurological Complications of Systemic Disease: Children, 882**
Aline I. Hamati, Marcia V. Felker

SECTION C Trauma of the Nervous System

- 60 Basic Neuroscience of Neurotrauma, 897**
W. Dalton Dietrich, Helen M. Bramlett
- 61 Concussion in Sports and Performance, 907**
Jeffrey S. Kutcher

- 62 Craniocerebral Trauma, 914**
Martina Stippler, Anil Mahavadi
- 63 Spinal Cord Trauma, 929**
*Ryan Khanna, Richard D. Fessler, Laura Snyder,
 Richard G. Fessler*
- 64 Trauma of the Nervous System: Peripheral Nerve Trauma, 950**
Bryan Tsao, Kevin Cronin, Brian Murray

SECTION D Vascular Diseases of the Nervous System

- 65 Ischemic Cerebrovascular Disease, 964**
José Biller, Michael J. Schneck, Sean Ruland
- 66 Intracerebral Hemorrhage, 1014**
Ashkan Shoamanesh, Carlos S. Kase
- 67 Intracranial Aneurysms and Subarachnoid Hemorrhage, 1031**
*Viktor Szeder, Satoshi Tateshima, Reza Jahan,
 Jeffrey L. Saver, Gary R. Duckwiler*
- 68 Stroke in Children, 1044**
Meredith R. Golomb, José Biller
- 69 Spinal Cord Vascular Disease, 1058**
Michael J. Lyerly, Asim K. Bag, David S. Geldmacher
- 70 Central Nervous System Vasculitis, 1066**
Olivia Groover, Fadi Nahab

SECTION E Cancer and the Nervous System

- 71 Epidemiology of Brain Tumors, 1068**
Dominique S. Michaud
- 72 Pathology and Molecular Genetics, 1076**
Leomar Y. Ballester, Jason T. Huse
- 73 Clinical Features of Brain Tumors and Complications of Their Treatment, 1099**
Reena P. Thomas, Michael Iv
- 74 Primary Nervous System Tumors in Adults, 1105**
Ashley Roque, Fred H. Hochberg, Joachim M. Baehring
- 75 Primary Nervous System Tumors in Infants and Children, 1122**
Vijay Ramaswamy, Sharon L. Gardner, Matthias A. Karajannis
- 76 Nervous System Metastases, 1145**
*Ugonma Chukwueke, Robert Cavaliere, David Schiff, Patrick Wen,
 Kristin Huntoon*

SECTION F Infections of the Nervous System

- 77 Neurological Manifestations of Human Immunodeficiency Virus Infection in Adults, 1165**
Ashok Verma, Joseph R. Berger
- 78 Viral Encephalitis and Meningitis, 1184**
John David Beckham, Marylou V. Solbrig, Kenneth L. Tyler
- 79 Bacterial, Fungal, and Parasitic Diseases of the Nervous System, 1214**
Nicolaas C. Anderson, Anita A. Koshy, Karen L. Roos

SECTION G Neurological Disorders

- 80 Multiple Sclerosis and Other Inflammatory Demyelinating Diseases of the Central Nervous System, 1226**
Michelle T. Fabian, Stephen C. Krieger, Fred D. Lublin
- 81 Paraneoplastic Disorders of the Nervous System, 1255**
Myrna R. Rosenfeld, Josep Dalmau
- 82 Autoimmune Encephalitis with Antibodies to Cell Surface Antigens, 1263**
Myrna R. Rosenfeld, Josep Dalmau

- 83 Anoxic-Ischemic Encephalopathy, 1269**
Jennifer E. Fugate, Eelco F.M. Wijdicks
- 84 Toxic and Metabolic Encephalopathies, 1276**
Karin Weissenborn, Alan H. Lockwood
- 85 Deficiency Diseases of the Nervous System, 1291**
Yuen T. So
- 86 Effects of Toxins and Physical Agents on the Nervous System, 1302**
Michael J. Aminoff, Yuen T. So
- 87 Effects of Drug Abuse on the Nervous System, 1319**
John C.M. Brust
- 88 Brain Edema and Disorders of Cerebrospinal Fluid Circulation, 1327**
Gary A. Rosenberg
- 89 Developmental Disorders of the Nervous System, 1345**
Harvey B. Sarnat, Laura Flores-Sarnat
- 90 Autism and Other Neurodevelopmental Disabilities, 1366**
Reet Sidhu, D. David O'Banion, Christine Hall
- 91 Inborn Errors of Metabolism and the Nervous System, 1386**
Phillip L. Pearl, Melissa L. DiBacco, K. Michael Gibson
- 92 Neurodegenerative Disease Processes, 1407**
Roger A. Barker, Kirsten M. Scott
- 93 Mitochondrial Disorders, 1415**
Chris Turner, Robert D.S. Pitceathly, Anthony H.V. Schapira
- 94 Prion Diseases, 1430**
Boon Lead Tee MD, Michael D. Geschwind MD PhD FAAN
- 95 Alzheimer Disease and Other Dementias, 1452**
Ronald C. Peterson, Jonathan Graff-Radford
- ▶ **96 Parkinson Disease and Other Movement Disorders, 1498**
Joseph Jankovic
- ▶ **97 Disorders of Upper and Lower Motor Neurons, 1535**
Conor Fearon, Brian Murray, Hiroshi Mitsumoto
- 98 Channelopathies: Episodic and Electrical Disorders of the Nervous System, 1568**
Min K. Kang, Geoffrey A. Kerchner, Louis J. Ptáček
- 99 Neurocutaneous Syndromes, 1589**
Monica P. Islam, E. Steve Roach
- ▶ **100 Epilepsies, 1614**
Bassel W. Abou-Khalil, Martin J. Gallagher, Robert L. Macdonald
- ▶ **101 Sleep and Its Disorders, 1664**
Alon Y. Avidan
- 102 Headache and Other Craniofacial Pain, 1745**
Ivan Garza, Carrie E. Robertson, Jonathan H. Smith, Mark A. Whealy
- ▶ **103 Cranial Neuropathies, 1783**
Janet C. Rucker, Meagan D. Seay
- 104 Disorders of Bones, Joints, Ligaments, and Meninges, 1798**
Christopher D. Geiger, Michael W. Devereaux, David Hart
- 105 Disorders of Nerve Roots and Plexuses, 1829**
David A. Chad, Michael P. Bowley
- 106 Disorders of Peripheral Nerves, 1853**
Bashar Katirji
- 107 Disorders of the Autonomic Nervous System, 1930**
Thomas Chelimsky, Gisela Chelimsky
- ▶ **108 Disorders of Neuromuscular Transmission, 1958**
Jeffrey T. Guptill, Donald B. Sanders
- ▶ **109 Disorders of Skeletal Muscle, 1978**
Christopher T. Doughty, Anthony A. Amato
- 110 Neurological Problems in the Newborn, 2022**
Jarred Garfinkle, Steven P. Miller
- ▶ **111 Cerebral Palsy, 2040**
Elizabeth Barkoudah, Siddarth Srivastava, Claudio Melo de Gusmao, David Coulter
- 112 Neurological Problems of Pregnancy, 2049**
D. Malcolm Shaner
- ▶ **113 Functional and Dissociative Neurological Symptoms and Disorders, 2076**
Jon Stone, Alan Carson
- Index, 11