

# Index

Note: entries printed in *italics* represent information contained in figures, illustrations, and tables.

abdominal aortic aneurysm, 192 abdominal pain, and eclampsia, 360 abducens nerve cranial nerve evaluation, 5 neuro-ophthalmological emergencies, 201-2 absence seizures, 97, 103 accessory nerves, and cranial nerve evaluation, 6 accidents. See also driving; electrical injuries; lightning; SCUBA diving; thermal injuries acute cervical strain, 290 hypothermia, 395-6 sleep disorders, 273 spinal cord injuries in children, 301 acetazolamide, and intracranial pressure, 322 acetylcholinesterase (AChE), and cholinergic syndrome, 373 acid-base disorders, and seizures, 95 acid fast bacilli (AFB), 119 acidosis, and neurotoxicology, 372, 381-3 acoustic nerves, and cranial nerve evaluation, 5-6 acoustic Schwannoma, 27, 86 acquired disorders heart disease in children, 331 seizures, 94 activated charcoal, and suspected poisoning, 372, 373 activities of daily living, and seizures, 107 acute back pain, 263 acute bacterial sinusitis, 57

acute cervical strain, 290 acute disseminated encephalomyelitis, 27 acute dystonic reaction (ADR), 157 acute gouty arthritis, 193 acute necrotizing myopathy, 178 acute neuromuscular respiratory failure, 66 acute toxic neuropathies, 388 acute transverse myelitis (ATM), 211, 213 acyclovir, and viral encephalitis, 127 adenosine triphosphate (ATP), and mitochondrial myopathy, 172 adenovirus, 122 Adie's tonic pupil and Adie's syndrome, adjunctive therapy, and myasthenia gravis, 184 adrenergic syndrome, 374, 377 Adson maneuver, and thoracic outlet syndrome, 190 advanced senescent gait, 109 age. See children; elderly; infants aggressive behavior, and immediate intervention, 239, 240 agitation, and immediate intervention, 239, 240 AIDS fungal meningitis, 119 neuropsychiatric symptoms, 239 airway support, and myasthenia gravis, 183 akathisia, 157, 387 alcohol. See also substance abuse headache, 390 poisoning, 382-3 withdrawal and seizures, 101, 106-7, 379

409



### 410 Index

altered mental status. See also cognitive anterior intraosseous syndrome, 190, 306, deficits; coma; consciousness; delirium; dementia; mental status anterior ischemic optic neuropathy, 204-5 antiarrythmic medications, and examination ancillary tests, 49 anticholinergic effects, 375 central nervous system dysfunction, 43-4 antibiotics altered mental status, 49 differential diagnosis, 46-7, 48 evaluation, 44-6 bacterial meningitis, 41, 115-16 management, 49-50 brain abscess, 117 neurotoxicology, 371-8 infections in children, 328 prognosis, 50-1 infectious spondylitis, 266 traumatic brain injury, 281 Lyme disease, 121 sinusitis, 57 alternating hemiplegia, 334 anticholinergic drugs alternobaric vertigo, 90 Alzheimer's Association, 225 dizziness, 88 Alzheimer's disease movement disorders, 158 dementia, 223-5 anticholinergic syndrome, 374, 375-6 neuropsychiatric symptoms, 239 anticoagulation, and stroke, 138-9, 140-1, pharmacologic treatment, 224 142. 336 American Academy of Neurology, 140–1 anticonvulsant drugs. See also antiepileptic American College of Obstetrics and drugs Gynecology, 360 altered mental status, 49 American Heart Association, 138 coagulopathy in fetus and maternal use American Spinal Cord Injury Association, of, 362 287. 288 seizures in children, 339 American Stroke Association, 140-1 antidepressants, and movement disorders, amnesia, and traumatic brain injury, 281 158. See also tricyclic antidepressants amphotericin B, and fungal meningitis, antiemetic medications, and dizziness, 88, ampicillin, and children, 327-8 antiepileptic drugs (AEDs). See also amyotrophic lateral sclerosis (ALS) anticonvulsant drugs; fosphenytoin; motor neuron diseases, 173 phenytoin movement disorders, 157 myasthenia gravis, 182 weakness, 62, 65 pregnancy, 362 analgesics. See also aspirin; narcotic seizures, 103, 340, 346, 347-8, 362 analgesics; nonsteroidal antihistamines. See also diphenhydramine anti-inflammatory drugs; prednisone; anticholinergic effects, 375 opiate dizziness, 88, 89 movement disorders, 158 analgesics drug-induced seizures, 379 antihypertensive medicines, and headache, 390 pregnancy, 361-2 anal wink, and spinal cord injuries, 289 antinausea drugs, and anticholinergic anatomy, and dizziness, 68–70 effects, 376 anti-Parkinsonian agents, and anion gap metabolic acidosis, 381, 382-3 anisocoria, 205-8 anticholinergic effects, 376 anklosing spondylitis (AS), 188, 193 antiplatelet therapy, and stroke, 138 antipsychotic drugs, and anticholinergic anoxic brain injury, and EEG findings, 31 anoxic encephalopathy, and coma, 48 effects, 375. See also neuroleptic drugs; antalgic gait, 112 psychopharmacologic medications anterior cord syndrome, 264, 292 antispasmodics, and anticholinergic anterior horn cell disorders, 65 effects, 375 anterior inferior cerebellar artery (AICA), antivenins, and toxic envenomations, 70,86-7 397-8, 398-9, 401



Index 411

antiviral therapy, for viral encephalitis, 127 automatisms, and seizures, 96 Anton syndrome, 205 automobiles. See driving anxiety, and dizziness, 89 axial skeleton, lesions of, 191 aphasia axis fractures, 293-4 dementia, 221 axonopathy, and toxic neuropathies, 388 mental status examination, 3 axonotmesis, 304, 306 stroke, 136 apnea, and brain death, 406. See also Babinski response, 163 obstructive sleep apnea backboard, and spinal cord injuries, 301 apneustic breathing, 44, 45 appearance, and mental status infectious spondylitis, 266 examination, 2 intraspinal hemorrhage, 270 low back and, 192-5 arbovirus encephalitis, 122, 124-5, 126 neuro-oncological emergencies, 232-4 Area Agency on Aging, 225 neuroradiography, 265 arenavirus, 122 arrhythmias prevalence of, 263 altered mental status, 44 spinal epidural abscess, 267 stroke, 137 spinal cord lesions, 65, 270 arterial blood gases (ABGs) bacterial labytinthitis, 84 apnea and brain death, 406 bacterial meningitis. See also meningitis headache, 54 diagnosis, 114-16 arterial dissection lumbar puncture, 41 headache, 56 myasthenia gravis, 181 neuroradiology, 14 neuroradiology, 23 arterial gas embolism (AGE), and presentation of, 113-14 Baker's cysts, 310 dysbarism, 393-5 arterio-venous malformation (AVM), 368 ballism, 151 arthritis. See osteoarthritis; rheumatoid "bamboo spine," 188 arthritis Bannworth's syndrome, 121 aseptic meningitis, 118 barbiturates aspiration pneumonia, 228 coma and intracranial pressure, 242, 249 aspirin, and stroke, 142, 336 neurotoxicology and seizures, 378 asterixis, 156, 387 Becker muscular dystrophy, 172 asystole, and electrical injuries, 391, 392 behavior ataxic breathing, 44, 45 dementia and disturbances of, 224-5 ataxic gait, 111 neuropsychiatric symptoms, 236, 238, ataxic hemiparesis, 8 240 athetosis, 148, 151 nontraumatic spinal cord emergencies, atlantoaxial rotary subluxation, 301, 302 271 atlanto-occipital dislocation, 293, 301 seizures and prolonged bizarre, 98 atlas fractures, 293 Bell's palsy atonic seizures, 97 cranial nerve lesions, 5 atropine, and cholinergic syndrome, 373 peripheral nerve disorders, 170 attention deficit hyperactivity disorder in pregnancy, 365 benign positional vertigo (BPPV), 78, 81-3 (ADHD), 153 auditory canal, and dizziness, 73 benign rolandic epilepsy (BRE), 343 benzamides, and dizziness, 89 auditory nerve, and peripheral vestibular benzodiazepines. See also diazepam; system, 69 auditory tests, and acoustic nerve lorazepam evaluation, 5. See also hearing loss adrenergic syndrome, 374 aura, and seizures, 95-6 agitation and aggression, 240 anticholinergic syndrome, 374 Australia, and toxic envenomations, 397, 398, 400 dizziness, 88, 89



## 412 Index

benzodiazepines (cont.)	brain death
eclampsia, 361	criteria for, 406–7
seizures, 105, 338, 361, 378	definition of, 405
sleep disorders, 274	diagnostic features, 50
biballism, 153	EEG findings, 31, 32
bicarbonate therapy, for salicylate toxicity,	evaluation, 405–6
382	brain imaging. See neuroradiology
"bicycle sign," 194	brainstem
bilateral facet dislocation, 296–7	brain abscess, 117
bilateral pinpoint pupils, 7	neurological examination, 10
binocular diplopia, and	reflexes and brain death, 406
neuro-ophthalmological emergencies,	stroke and myasthenia gravis, 181
197, 198, 199–200, 201, 202. See also	shunt dysfunctions, 314
diplopia	Brain Trauma Foundation, 283
biopsy studies, and hypotonia in infants,	brain tumors
356	alteration of mental status, 226-8
bizarre behavior, and seizures, 98	back pain, 232–4
blepharospasm, 150	cerebrovascular events, 229–31
blunt trauma, 306	focal neurological deficits, 231–2
blood pressure. See also hypertension	headache, 55–6
intracranial pressure and maintenance of	intracranial pressure, 246
adequate, 248	neuropsychiatric symptoms, 239
stroke, 138	neuroradiology, 27–8
traumatic brain injury, 284	pregnancy, 369
Borrelia burgdorferi, 120–1	seizures and status epilepticus, 228–9
botanicals. See plants and plant-derived	breath holding, in infants and children,
substances	100–1
botulism	Brief Mental Status Examination, 2
Guillain-Barré syndrome, 178	bromocriptine, and neuroleptic malignant
hypotonia in infants, 355	syndrome, 383
myasthenia gravis, 182	bronchospasm, and cholinergic syndrome,
neuromuscular transmission, 171	373
neuro-ophthalmological emergencies,	Brown-Séquard syndrome, 211, 264, 292
203	bulbocavernous reflex, 289
weakness, 65	bunyavirus, 122
bowel and bladder dysfunction, and	burn patients, 392, 393
nontraumatic spinal cord emergencies,	bursitis, and pain, 192, 193
264	burst fracture, 295, 298, 299
box jellyfish, 400–1	butorphanol, and migraine, 60
brachial plexus, and peripheral nervous	butyrophenones, and dizziness, 89
disorders, 167	butyrophenones, and dizziness, 89
bradyarrhythmias, and altered mental	caffeine, and seizures, 107
status, 44 brain. <i>See also</i> brain abscesses; brain	California encephalitis, 124
	Campylobacter enteritis, 175, 176
death; brain tumors; traumatic brain injury	cancer. See brain tumors; spinal cord tumors
biopsy and HSV encephalitis, 126	Candida albicans
herniation and intracranial pressure,	brain abscess, 24
242, 244–5	fungal meningitis, 119
neurological examination, 10	carbamazepine, and seizures in children,
brain abscesses	343, 346
bacterial meningitis, 116–17	carbon monoxide exposure, and headache
haadacha 55	5.4



Index 413

cardiopulmonary bypass, and hemiparetic gait, 111 hypothermia, 395 intracranial trauma, 18 cardiopulmonary resuscitation, and cerebral intravascular coagulation, 230 recovery, 51 cerebral localization, and abnormal cardiorespiratory arrest, and electrical respiratory patterns, 44 injuries, 392 cerebral palsy, and spastic gait, 111 cardiovascular presyncope, and dizziness, cerebral venoocclusive disease, and neuroradiology, 14-15 carotid artery injuries, 290, 333 cerebral venous thrombosis, 333, 367-8 carotid rupture, and brain tumors, 230 cerebrospinal fluid (CSF). See also shunt carotid sinus massage, 77 systems; intracranial pressure carpal tunnel syndrome fungal meningitis, 119 median nerve compression, 307, 308 Guillain-Barré syndrome, 177 headache and abnormalities, 53, 56 pregnancy, 364 upper extremity pain, 190 HSV encephalitis in infants, 326 cataplexy, 273, 275 infections in children and contaminated, cauda equina syndrome 329 neuropathic pain, 194 lumbar puncture, 39-40 sensory deficits, 264 tuberculous meningitis, 118–19 spinal cord compression, 233 viral encephalitis, 126 cerebrovascular disease. See also stroke spinal cord injuries, 293 causalgia, 190 in children, 330-6 cavernous angioma, 16 chorea, 152 cefotaxime, and children, 328 dizziness, 81 cell counts, and lumbar puncture, 39 headache, 53, 56 central cord syndrome, 264, 292 intracranial pressure, 246 central facial palsy, 170 leading causes of death and, 131 central midbrain syndrome, 133 neuro-oncological emergencies, central nervous system. See also infections 229 - 31altered mental status and dysfunction of, neuropsychiatric symptoms, 239 in pregnancy, 367-8 compensatory mechanisms and seizures, 101 dizziness, 88 cervical osteoarthritis, 187 inflammatory disease and cervical radiculopathy, 189–90 neuroradiology, 23-7 cervical spine injuries, 293 neuropsychiatric symptoms and cervical spine joint disorder, 57 behavioral change, 236 cervical sprains, 19-20, 21 central transtentorial herniation, 245 cervical stenosis, 292 central vestibular system, 70 cervical traction, and spinal cord injuries, Centuroides exilicanda (bark scorpion), 398, 399 Cesarean section, and traumatic cephalopods, 401 neuropathies, 365 cerebellar tremor, 155 Charcot-Marie-Tooth syndrome, 352 cerebellopontine angle (CPA) tumors, 86 cheiralgia paresthetica, 190, 309 cerebellum, and brain abscess, 117 chemical restraints, and dementia, 218 cerebral artery occlusions, 335 chemoprophylaxis, and bacterial cerebral contusions, 280 meningitis, 116 cerebral edema, 245-6 chemotherapeutic agents, and cerebral embolism, 333 encephalopathy, 228 cerebral hemispheric lesions, and Cheyne-Stokes respiration, 44, 45 weakness, 64 chiasmal disease, and cerebral infarction neuro-ophthalmological emergencies, computed tomography (CT), 13 204, 205



## 414 Index

children. See also infants	as contraindication for lumbar puncture,
brain tumors, 227	36
breath holding and seizures in, 100–1 cerebrovascular disorders, 330–6	maternal use of anticonvulsants and fetal, 362
cholinergic syndrome, 373	cobra, 396
dextrose and glucose levels, 371	Coccidioides immitis, 119
hydrocephalus and shunts in, 313–23	"Cock-robin" appearance of head, and
infections of central nervous system,	spinal cord injuries in children, 301
325–9	Coelenterates (jellyfish), 400
intracranial pressure values for, 242	cognitive deficits. See also altered mental
scorpion envenomation, 398	status; memory; mental status
seizures, 337–48	examination
spinal cord injuries, 300–2	dementia, 219–21, 223
traumatic brain injury, 284	sports-injury related concussion, 282
"chin-chest" maneuver, and herniated	cold caloric tests, 76
nucleus pulposus, 190	coma. See also altered mental status;
Chironex fleckeri (box jellyfish), 400–1	consciousness
chlordiazepoxide, and alcohol withdrawal	abnormal respiratory patterns, 44, 371
seizures, 106	bariturate-induced and intracranial
chlorpromazine, and migraine, 59, 60	pressure, 242, 249
cholinergic syndrome, 373–4	description of, 43
cholinesterase inhibitors, and Alzheimer's	differential diagnosis, 46–7, 48
disease, 224	eclampsia, 360
Chondrichthyes, 399	neurotoxicology, 378, 381–3
chorea	prognosis, 51
diagnosis and management of, 151–3	common peroneal nerve, and compression
drug-induced, 158, 386	neuropathy, 311
phenomenology of, 148	Commonwealth Serum Laboratories
neurotoxicology, 386	(Australia), 400/';
chorea gravidarum (CG), 363	compartment syndrome, 306
choriocarcinomas, 369	compensatory mechanisms, and dizziness,
chromosomal analysis, and hypotonia in	88
infants, 356	competency, as medical-legal issue, 225
chronic inflammatory demyelinating	complete blood count (CBC), and
polyneuropathy (CIDP), 168, 178	headache, 54
chronic obstructive pulmonary disease	complete spinal cord injury, 287
(COPD), 66, 79	complex febrile seizures, 343
chronic pain, 263	complex partial seizures
chronic progressive multiple sclerosis	dizziness, 81
(CPMS), 210, 213	features of, 96
chronic toxic neuropathy, 388	management of, 103
cigarette smoking, and cluster headache,	compression fracture, of spinal cord, 295
57	compression neuropathies, 306–11
cingulate herniation, 244–5	compressive optic neuropathies, 205
"clay shoveler's fracture," 297	computerized tomography (CT). See also
Clostridium botulinum, 182, 355	neuroradiology
Clostridium tetani, 355	back pain, 265
cluster headache, 57–8	dementia, 221–2
CMV encephalitis, 118	intracranial pressure, 243-4
coagulation disorders, and brain tumors,	magnetic resonance imaging compared
230	to, 12–13
coagulopathies	seizures, 102
in children, 332	shunt dysfunctions, 319–21



Index 415

stroke, 137, 335 creatine phosphokinase (CPK) traumatic brain injury, 281, 282-3 inflammatory myopathy, 171 concussion and concussive syndromes muscular dystrophy in infants, 355 clinical features in sports-related, 282 Creutzfeldt-Jakob disease (CJD), 222 Cryptococcus neoformans, 119 definition of, 280-1 congenital cerebrovascular anomalies, 332 cubital tunnel syndrome, 308 congenital heart disease, 331, 334 Cushing's phenomenon, 248 congenital muscular dystrophies, 352-3 Cushing's syndrome, 44 congenital myasthenia gravis, 180 Cushing's triad, 214 congenital myotonic dystrophy, 355 cutaneous reflexes, 9 connective tissue disorders, and seizures, 95 cyproheptadine, and serotonin syndrome, consciousness. See also altered mental 384 cytomegalovirus (CMV) status; coma components of, 43 Guillain-Barré syndrome, 176 HIV-related, 117, 118 dizziness, 72 mental status examination, 3 cytotoxic edema, 245-6 seizures, 98 traumatic brain injury, 281 dantrolene, and neuroleptic malignant consultation. See also referrals syndrome, 383 dementia and neurologic, 221-2 deafness, and acoustic nerve evaluation, multiple sclerosis and psychiatric, 217 5-6. See also hearing loss conus medullaris syndrome death. See also brain death; mortality neuropathic pain, 194 cause of, 405-6 sensory deficits, 264 cerebrovascular disease as cause of, 131 spinal cord injuries, 292-3 time of. 406-7 convulsive seizures, generalized, 96 traumatic brain injury, 279 convulsive status epilepticus, 104-5 decerebrate and decorticate posturing, and coordination, and motor function, 8 altered mental status, 46 coral snake, 396, 398 decompression sickness, and diving-related corneal reflex test, 5, 76 injuries, 393, 394-5 cortical infarction, 333 decontamination, and suspected corticosteroids. See also steroids poisoning, 372 intracranial pressure, 242, 249 deep peroneal nerve, 310 multiple sclerosis, 215 deep tendon reflexes (DTRs) vestibular neuronitis, 84 altered mental status, 46 coughing, and vagus nerves, 6 dizziness, 77 coxalgic gait, 112 hypotonia in infants, 352 cranial nerves. See also cranial neuropathies neurological examination, 8, 9 dizziness, 74-6, 80 neuromuscular disorders, 163 hypotonia in infants, 351 nontraumatic spinal cord emergencies, Lyme disease, 121 264 neurological examination, 3-7 definitive therapy, for spinal cord tumors, seizures, 99 stroke, 136 degenerative disease of the spine, 21, 23 cranial neuralgias, 53 degenerative disorders, and seizures, 95 cranial neuropathies, and Dejerine-Sottas syndrome, 352 neuro-ophthalmological emergencies, delirium altered mental status, 46-7, 48 200 cranial weakness, 64 central nervous system dysfunction, craniocervical junction, and neuroradiology, 20 dementia, 219, 220 craniospinal trauma, and neuroradiology, drug-induced, 372 17-19 delirium tremens (Dts), 101



### 416 Index

dementia chorea, 151, 152 definition of, 219 dementia, 218-21, 222 differential diagnosis, 218-21, 222 dizziness, 78-87 evaluation, 218 eclampsia, 360 laboratory tests, 223 epilepsy in children, 337-8 management of and disposition of Guillain-Barré syndrome, 177, 178 patients, 221-5 headache, 53, 55-60 normal pressure hydrocephalus, 260-1 hypotonia in infants, 352-5 idiopathic intracranial hypertension prevalence in elderly, 218 demyelinating disease, and dizziness, 81 (IIH), 255-6 dental referral, and facial pain, 186 intracranial pressure, 245-6 depression multiple sclerosis, 212-14 cognitive decline in elderly, 221 neuro-ophthalmological emergencies, inpatient evaluation and treatment, 239 199-203 de Quervain disease, 189 nontraumatic spinal cord emergencies, dermatomyositis (DM), 171 265 - 71developmental disorders, and dizziness, 81 normal pressure hydrocephalus, 261 Devic's disease, 211 peripheral nerve disorders, 163–73 dexamethasone seizures, 99-102, 229, 337-8, 348 infections in children, 328 shunt systems, 314-21 intracranial pressure, 249 stroke in children, 334 migraine, 59, 60 viral encephalitis, 123, 125-6 spinal cord tumors and back pain, 234 weakness, 64-6 dextrose, and glucose levels, 371 diffuse axonal injury (DAI), 280 diffuse toxic myopathies, 389 dihydroergotamine (DHE-45), and cerebral edema, 246 migraine, 58, 59, 60 polyneuropathy, 10 diagnosis. See also differential diagnosis; diphenhydramine, and migraine, 59, 60. evaluation; laboratory tests; See also antihistamines neurological examination; physical diphenoxylate, and opioid syndrome, 377 diplopia. See also binocular diplopia; examination bacterial meningitis, 114-16 monocular diplopia; vertical diplopia brain death, 50, 407 idiopathic intracranial hypertension (IIH), 252, 253-4 Guillain-Barré syndrome, 178 headache, 54-5 oculomotor nerve evaluation, 4 hypotonia in infants, 355-6 disaster triage protocols, for electrical and idiopathic intracranial hypertension lightning injuries, 392 (IIH), 255 disc herniation, 23, 290. See also vertebral myasthenia gravis, 182-3 discitis neurological history, 1 disconjugate eye positions, and altered neuropsychiatry, 238–40 mental status, 46 nontraumatic spinal cord emergencies, dislocations, and peripheral nerve injuries, 271 305. See also hyperextension stroke in children, 335 dislocation injuries; thoracic weakness, 63 fracture-dislocation injuries diazepam. See also benzodiazepines disposition, of patients. See also hospitalization alcohol withdrawal seizures, 106 brain abscess, 116-17 migraine, 59 seizures in children, 339, 340 dementia, 221-5 differential diagnosis. See also diagnosis eclampsia and preeclampsia, 362 altered mental status, 46-7, 48, 226-8 hypotonia in infants, 356 back pain, 232-3 idiopathic intracranial hypertension brain tumors, 226-8, 229-30, 231-2 (IIH), 258



Index 417

infections in children and, 327-8 edrophonium, and myasthenia gravis, multiple sclerosis, 215, 217 182-3, 184 myasthenia gravis, 184 elapids (snakes), 396 neuropsychiatric symptoms, 237, elderly 238 - 40elder abuse, 225 seizures. 107 medical complications of cognitive stroke, 142 deficits, 223 dissociative states, and seizures, 102 prevalence of dementia, 218 distal muscle weakness, 64, 352 electrical injuries, 306, 391–3 distal shunt malfunction, 321 electrocardiograms (ECGs) diuretics altered mental status, 49 intracranial pressure, 248-9 headache, 55 pregnancy and pseudotumor cerebri, 368 tricyclic antidepressants and QRS diverticulitis, 192 interval, 381 diving. See SCUBA diving electroencephalograms (EEGs) dizziness. See also vertigo altered mental status, 49 anatomy, 68–70 appearance of normal, 30 definition of, 68 headache, 55 differential diagnosis, 78-87 seizures, 31, 92, 343 laboratory tests, 87 types of abnormalities, 30-2 management of, 87–90 electrolyte balance medical history, 70–3 altered mental status, 44, 48 doll's eyes, 7, 76 seizures, 95 weakness, 66 dopamine, and parkinsonism, 149 dorsal cord syndrome, 264 electronystagmography (ENG), and dorsal midbrain syndrome, 133 Meniere's disease, 85 Down's syndrome, 352, 356 electrophysiology studies, and hypotonia driving, of automobiles in infants, 356 dementia, 225 emergency medical technicians (EMS), and seizures, 107-8 seizures, 97 emergent imaging, indications for, 13 drop attacks, 97. See also foot drops droperidol, and migraine, 59, 60 encephalitis. See also viral encephalitis drug-induced parkinsonism, 157-8 coma and delirium, 48 Duchenne's muscular dystrophy (DMD), EEG findings, 31 encephalomyelitis, 211, 214 172, 356 ductions, and neuro-ophthalmological encephalopathy, and chemotherapeutic examination, 198-9 agents, 228. See also metabolic DUMBELS (defecation, urination, miosis, encephalopathy; toxic encephalopathy bronchorrhea, emesis, lacrimation, endocrine disorders, and seizures, 95 salivation), 373 endolymph dizziness, 69 durable power of attorney, 225 Meniere's disease, 85 dysarthria, 6 dysbarism, 393-5 endotracheal intubation. See also rapid-sequence intubation dyskinesia dopamine replacement, 149 cholinergic syndrome, 373 drugs associated with, 386 seizures, 104-5 dysmetria, an dizziness, 74 enteroviral encephalitis, 124-5 dystonia, 148, 149-51 enteroviruses, and infections in children, 327 early gait apraxia, 109 entrapment syndromes, 190, 195 Eastern equine encephalitis (EEE), 122, envenomation. See toxic envenomation environmental causes, of coma and 124, 126 eclampsia, 359-62, 367, 368, 369 delirium, 48



## 418 Index

environmental toxins. See also marine	chorea, 151
toxins; organophosphate poisoning;	dementia, 218
toxic envenomations	eclampsia, 360
accidental hypothermia, 395–6	epilepsy in children, 338–41, 343–7
drug-induced seizures, 380	gait disturbances, 109–12
dysbarism, 393–5	Guillain-Barré syndrome, 177, 178
electrical, lightning, and thermal	headache, 52–4
injuries, 391–3	hemiballism, 153
headache, 391	idiopathic intracranial hypertension
enzyme-linked immunosorbent assay	(IIH), 252
(ELISA), and snake identification kit,	movement disorders, 146–7
297	multiple sclerosis, 211
epicondylitis, 189	myasthenia gravis, 181
epidemiology. See pathophysiology;	neuromuscular disorders, 162
prevalence; prognosis	neuro-ophthalmological emergencies,
epidural abscess, 191	197–9
epidural hematoma (EDH)	neuropsychiatry, 236–8
craniospinal trauma, 17, 20	normal pressure hydrocephalus (NPH),
traumatic brain injury, 280, 281	260-1
epidural spinal cord compression (ESCC),	peripheral nerve injuries, 304–6
232–4	seizures, 97-9, 229, 338-41, 342, 343-7
epilepsia partialis continua, 93	shunt systems, 314–21
epilepsy. See also seizures; status epilepticus	spinal cord injuries, 286–9
in children, 334, 337, 341–8	stroke, 135–7, 334–5
electroencephalograms, 30-1	traumatic brain injury, 281–2
neuropsychiatric symptoms, 239	viral encephalitis, 125–6
prevalence of, 92	excessive daytime sleepiness (EDS), 273,
types of, 92, 93	275
epileptic myoclonus, 156	exclusion criteria, for thrombolytic
Epstein-Barr virus	therapy, 141, 143
Guillain-Barré syndrome, 176	expressive aphasia, 136
upper extremity pain, 188	extracranial structures, diseases of and
erythema chronicum migrans (ECM), 120	headache, 53
erythrocyte sedimentation rate (ESR)	extramedullary spinal cord tumors, 233
headache, 54	extraocular eye movements (EOM), 4
infectious spondylitis, 266	extropia (XT), 198
inflammatory myopathy, 171	eye. See also neuro-ophthalmological
spinal epidural abscess, 267	emergencies; visual acuity; visual field;
Eschericia coli, and infectious spondylitis,	visual loss
266	external examination of, 199
essential myoclonus, 156	intracranial pressure, 243
essential tremor (ET), 154	
estropia (ET), 198–9	facet disorders, 295–7
ethanol, and alcohol poisoning, 383	facial expression test, 5
ethyl alcohol, and sedative hypnotic	facial mononeuropathy, 169, 170
syndrome, 374	facial muscles, and weakness in infants, 352
ethylene glycol, and neurotoxicology, 382,	facial nerves, and cranial nerve evaluation,
383	5
evaluation. See also diagnosis	facial pain, 186–7
altered mental status, 44	facial weakness, and dizziness, 72
back pain, 232–3	falling, and dizziness, 72
brain death, 405–6	family history. See also genetic disorders
brain tumors, 226-8, 229, 229-30, 231-2	dizziness, 72



Index 419

hypotonia in infants, 350 pregnancy and traumatic neuropathies, seizures in children, 341, 343 365 family members, and medical history, 1, forced vital capacity (FVC), 162 219, 237, 372. See also family history; Formosan krait (Bungarus multicinictus), 396 parent counseling fosphenytoin, and seizures, 105-6, 338, fasciculations, toxicologic causes of, 397 339, 340. See also antiepileptic drugs fatigue syndromes, and multiple sclerosis, fourth cranial nerve palsy, 201 213 fractures, and peripheral nerve injuries, febrile seizures, 341–3 305. See also axis fractures; sacral femoral mononeuropathy, 169 fractures; skull fractures; spinal femoral nerve, and compression fractures; zone I, II, and III fractures neuropathies, 310 Frenzel glasses, 74 friends, and patient history, 237, 372 femoral neuropathy, and pregnancy, 365 fetal monitoring, and seizures in frogleg position, and hypotonia, 351 frontal lobe, and brain abscess, 117 pregnancy, 362 fetal position, for lumbar puncture, 37, 38 frontotemporal dementias, 239 Fukuda stepping test, 78 fever altered mental status, 44-5 fundus, and eve examination, 199 brain abscess, 116 funduscopic examination, and spinal intracranial pressure, 249 sarcoidosis, 268 myasthenia gravis, 183 fungal meningitis. See also meningitis seizures in children, 341–3 diagnosis and treatment of, 119 firearm wounds. See gun shot wounds lumbar puncture, 41 Fisher's syndrome, 177 furosemide, and intracranial pressure, fistula test, and dizziness, 78 248-9, 321-2 flavivirus, 122 floppy infant, causes of, 355 gag reflex test, 6, 76 flucytosine, and fungal meningitis, 119 gait disturbances fluid resuscitation, and intracranial evaluation and management of, 109-12 pressure, 248 motor function, 8 normal pressure hydrocephalus, 260, 261 fluid therapy, and pregnancy-induced hypertension, 362 stroke, 136 flumazenil weakness, 62 altered mental status, 49, 371 gamma-aminobutyric acid (GABA), and neurotoxicological seizures, 378, 381 respiratory depression, 378 sedative hypnotic syndrome, 376 gastropods, 401 fluorescent treponemal antibody (FTA) test, gaze-evoked nystagmus, 74-5 85, 120 generalized convulsive SE, in children, 338 focal brain lesions, and EEG findings, 31 generalized seizures, 96-7 focal dystonia, 150 genetic disorders. See also family history focal neurological deficits chorea, 151-3 altered mental status, 45-6 dizziness, 81 brain tumors and neuro-oncological seizures, 94 emergencies, 231-2 giant cell arteritis, and headache, 56-7 focal toxic neuropathies, 389 Glasgow Coma Scale, 3, 50, 243, 279 focused examination, of peripheral nervous glioblastoma multiforme, 27 system, 162-3 glossopharyngeal nerve, and cranial nerve folic acid, and alcohol poisoning, 383 evaluation, 6 foods, and headache, 390. See also marine glucose. See also hyperglycemia; toxins; nutrition hypoglycemia altered mental status and levels of, 371 foot, and sensory nerves, 310 lumbar puncture, 39-40 foot drops gait disturbances, 111-12 gout, and lower extremity pain, 192, 193



### 420 Index

grand mal seizures, 96 hearing loss, and dizziness, 72, 76, 85. See Grisel's syndrome, 301 also auditory tests; deafness guardianship, and patients with dementia, heavy metals drug-induced seizures, 380 Guillain-Barré syndrome headache, 391 clinical features of typical, 176 Heliobacter jejuni, and Guillain-Barré description of, 175 syndrome, 176 emergency presentation of, 175-6 HELPP syndrome, 360 evaluation, 177, 178 hematologic disorders, in children, 332 hypotonia in infants, 355, 356 hemiballism, 148, 153 idiopathic intracranial hypertension hemifacial spasm, 101 (IIH), 253 hemiparetic gait, 111 hemodialysis management, 177 myasthenia gravis, 181-2 cerebral edema, 246 variants of, 177 ethanol poisoning, 383 weakness, 65, 176 hemoglobinopathy, 192, 193 gummatous neurosyphilis, 120 Hemophilus influenzae bacterial meningitis, 113, 115, 116 gun shot wounds peripheral nerve injuries, 304 Guillain-Barré syndrome, 176 vaccine for children and, 325 vascular injuries and spinal cord, 290 Guyon's canal syndrome, 309 Hemophilus meningitis, 116 hemorrhagic infarctions, 330 hair cells, and vestibular sensory organs, hepatitis Guillain-Barré syndrome, 176 Hallpike maneuver, 75, 81, 82 upper extremity pain, 188 hallucinations herbal medicines. See plants and dementia, 221 plant-derived substances sleep paralysis and hypnagogic, 275 herniated nucleus pulposus (HNP), 189-90 haloperidol. See also neuroleptic drugs herniation, and intracranial pressure agitation and aggression, 240 values, 242. See also disc herniation dementia, 218 heroin, and neurotoxicology, 384, 387 "hangman's fracture," 294 herpes simplex virus (HSV) encephalitis Hapalochlena lunulata (octopus), 401 diagnosis and management of, 123-4, Hashimoto's disease, and Guillain-Barré 126 syndrome, 176 frontal and temporal lobes, 122 headaches infants, 325-6 after lumbar puncture, 37 neuroradiology, 23-4 brain abscess, 116 herpes varicella zoster (HVZ) virus differential diagnosis, 53, 55-60 encephalitis, 122, 124, 127 dizziness, 72 herpetic neuralgia, 187 evaluation, 52-4 hip girdle weakness, 112 idiopathic intracranial hypertension HIV (human immunodeficiency virus) (IIH), 257 central nervous system infections, management, 55-60 117 - 18neurotoxicology, 387, 390-1 encephalitis, 24 pregnancy, 362-3, 369 Guillain-Barré syndrome, 176 "head-tilt" maneuver, and herniated neuropsychiatric symptoms, 239 nucleus pulposus, 190 weakness, 64 head trauma. See also traumatic brain injury HIV encephalitis, 117 definition of head injury, 279 HIV leukoencephalopathy, 117 headache, 53 "hold-up" maneuver, and thoracic outlet seizures, 95 syndrome, 190 head shaking, and dizziness, 78 Hollenhorst plaque, 4



Index 421

Horner's syndrome dizziness, 79 neurological examination, 7 hypothermia, 395 sympathetic nervous system, 206-7 hypokalemia, and myasthenia gravis, 182 vascular disease, 87 hypothermia hospitalization. See also disposition accidental, 395-6 dementia and behavioral disturbances. altered mental status, 45 hypotonia, in infants eclampsia and preeclampsia, 362 definition of, 350 differential diagnosis, 352-5 hypotonia in infants, 356 idiopathic intracranial hypertension evaluation, 350-2 (IIH), 258 management and disposition of patients, multiple sclerosis, 215 myasthenia gravis, 184 hypovolemic shock, in children, 284 neuropsychiatric symptoms, 238, 240 hypoxic coma, 45, 246 seizures, 107 hypoxic encephalopathy, and coma, 48 snake envenomation, 398 hypoxic-ischemic encephalopathy, in household toxins, and drug-induced infants, 352 seizures, 380 hysterical gait, 112 Huntington's disease (HD), 151-3, 239 hysterical paralysis, 271 hydralazine, and hypertension, 361 hydrocephalus. See also intracranical iatrogenic disorders, in children, 333 pressure; normal pressure ice pack test, and myasthenia gravis, 183 hydrocephalus; shunt systems idopathic brachial plexopathy, 168 headache, 56 idiopathic epilepsies mental status, 227 causes of seizures. 94 hydrostatic edema, 246 EEG findings, 31 hydroxyzine, and migraine, 60 idiopathic intracranial hypertension (IIH) hyperacusis, 5 clinical features, 255 hyperemesis gravidarum, 362, 369 common symptoms of, 253 hyperextension, and cervical sprains, conditions associated with, 253 differential diagnosis, 255-6 hyperextension dislocation injuries, 297-8 disposition of patients, 258 hyperglycemia, and dizziness, 79 evaluation, 252 hyperkinetic movement disorders, 149–53 management, 257-8 idiopathic torsion dystonia (ITD), 149, 157 hypersomnia, 276 hypertension. See also blood pressure; "imminent death," 407 idiopathic intracranial hypertension immunosuppressive agents altered mental status, 44 multiple sclerosis, 215 pregnancy-induced, 359, 361-2 myasthenia gravis, 184 stroke, 138 incidence. See prevalence hypertensive encephalopathy, 48 inclusion body myositis (IBM), 171 hyperthermia, and neurotoxicology, 383 inclusion criteria, for thrombolytic therapy, hypertropia, 199 141, 143 hyperventilation increased intracranial pressure. See altered mental status, 44, 45 intracranial pressure dizziness, 77, 79 infants. See also children; pregnancy breath holding and seizures in, 100-1 intracranial pressure, 242, 248 seizures, 101 hypotonia, 350-6 hypnagogic hallucinations, 275 infections of central nervous system, hypoglassal nerves, and cranial nerve 325 - 7evaluation, 6-7 lumbar puncture, 38 neonatal myasthenia gravis, 180, 367 hypoglycemia in children, 334 seizures, 338, 340, 341



## 422 Index

infants (cont.)	intraaxial posterior fossa masses, 27
traumatic brain injury, 284	intracerebral hemorrhage (ICH)
infections, of central nervous system. See	in infants, 352
also encephalitis; meningitis	neuroradiology, 16–17
alterations in mental status, 227	pregnancy, 367, 368
brain abscess, 116–17	stroke and, 134, 135
in children, 325–9	intracranial hypotension, and headache, 56
chorea, 152	intracranial infection
dizziness, 79, 81	in children, 334
HIV-related, 117–18	headache, 53
intracranial pressure, 246	intracranial neoplasms, 334. See also
labyrinthitis, 84	intracranial tumor
lumbar puncture, 36	intracranial pressure (ICP). See also
Lyme disease, 120–1	hydrocephalus; shunt systems
neurosyphilis, 120	brain herniation, 242, 244–5
nociceptive pain, 188	differential diagnosis, 245–6
radioculpathy, 167	evaluation, 243–4
seizures, 94–5	idiopathic intracranial hypertension
shunt systems, 323	(IIH), 255
spinal cord, 265–7	lumbar puncture, 35–6
infectious spondylitis, 265–6	management, 247-50, 336
inflammatory bowel disease, 188	mental status, 227
inflammatory disorders	pathological processes, 242
headache, 56–7	prehospital care, 243
neuroradiology, 23–7	shunt systems, 313–14
nontraumatic spinal cord emergencies,	stroke in children, 336
267–9	traumatic brain injury, 283, 284
radioculopathy, 167	values, 242–3
seizures, 95	intracranial trauma, and coma or delirium,
inflammatory myopathy, 171	48. See also traumatic brain injury
influenza, in children, 325	intracranial tuberculoma, 118
insomnia, 273, 276–7	intracranial tumor, and headache, 53,
inspection, of shunt system, 315, 318	55–6. See also intracranial neoplasms
intermittent explosive disorders, 101–2	intramedullary spinal cord tumors, 233
initial stabilization, of dizziness, 87–8	intraocular pressure, and headache, 55
inner ear disorders, and dizziness, 80	intraparenchymal hemorrhage, 280, 330,
insect envenomation. See toxic	333
envenomation	intraspinal hemorrhage, 270
intellectual ability, and dementia, 219	intratumoral parenchymal hemorrhage,
intensive care unit (ICU), and myasthenia	230
gravis, 184	intraventricular catheter placement, and
intention tremor, 153	intracranial pressure, 250
intermediate syndrome (IMS), and	iron deficiency anemia, and idiopathic
organophosphorus compounds, 374	intracranial hypertension (IIH), 253
International Classification of Epileptic	ischemic infarctions, in children, 333
Seizures, 92, 93	ischemic stroke, 131
International Stroke Trial (IST), 138	isoniazid
internuclear ophthalmoplegia (INO), 7,	drug-induced seizures, 381
202–3, 211	tuberculous meningitis, 119
interstitial edema, 246	-
intoxication	Jacksonian seizure, 93
coma and delirium, 48	Jarisch-Herxheimer reaction, 121
staggering gait, 111	Jefferson fractures, 293, 294



Index 423

jellyfish, 400-1 Joplin's neuroma, 195 jugular vein injuries, 290 "jumped facet" syndrome, 295-6, 301 ketorolac, and migraine, 59, 60 kinetic tremor, 385 Kleine-Levin syndrome, 276 krait, 396 labetalol, and hypertension, 361 laboratory tests accidental hypothermia, 395-6 altered mental status, 49, 372 brain tumors, 228, 230 dementia, 223 dizziness, 87 multiple sclerosis, 214-15 neurotoxicology, 372 nontraumatic spinal cord emergencies, normal pressure hydrocephalus, 261 seizures, 102 stroke, 136-7, 335 labyrinthitis, 84-5 lactate dehydrogenase (LDH), and inflammatory myopathy, 171 lacunar infarcts, 132 Lambert-Eaton myasthenic syndrome (LEMS), 170-1 lamotrigine, and seizures in children, Lance-Adams syndrome, 156 Lasègue sign, 194 late gait apraxia, 109 lateral decubitus position, for lumbar puncture, 37-8 lateral femoral cutaneous neuropathy, and pregnancy, 365 lateral inferior pontine syndrome, 133 lateral medullary syndrome, 87, 133 lateral superior pontine syndrome, 133 legal system. See medical-legal issues leptomeningeal tumor, 232, 234 leukemia, and brain tumors, 230 Lhermitt's sign, 211 lidocaine, and migraine, 59 lid retraction, and eye examination, 199 lightning injuries, 391–2 light touch, and sensory examination, 9-10 limb ataxia, 8 Listeria monocytogenes, 115

lithium cluster headache, 58 drug-induced seizures, 381 local pain, 263 location, of weakness, 62, 64 "locked-in state," 43 locked-in syndrome, 133 lorazepam. See also benzodiazepines agitated or aggressive behavior, 240 seizures in children, 338, 339, 340 Lou Gehrig's disease. See amyotrophic lateral sclerosis (ALS) low back and lower extremity pain, 192-5 lumbar disc disease, 27 lumbar HNP, 194-5 lumbar pain, 193 lumbar puncture (LP) altered mental status, 49 contraindications for, 36 dementia, 221, 222 headache, 54 idiopathic intracranial hypertension (IIH), 255 indications for, 35-6 infections in infants and children, 326, 329 meningitis, 35, 36, 41 normal pressure hydrocephalus, 261 procedure, 37-9 results of, 39-40 risks and complications of, 36-7 seizures, 102 shunt infection, 323 stroke, 137 traumatic tap versus SAH, 40 lumbar spine fracture, 298-9 lumbar strain or sprain, 192 lumbosacral plexus, 168 Lyme disease diagnosis and management of, 120-1 multiple sclerosis, 214 lymphocytic choriomeningitis (LCM) virus encephalitis, 125 lymphoma, 24 maculotoxin, 401 magnesium sulfate eclampsic seizures, 360-1 migraine, 59, 60 myasthenia gravis in pregnancy, 367 magnetic resonance angiography (MRA) applications of, 13

seizures, 102



## 424 Index

magnetic resonance angiography ( <i>cont.</i> ) stroke in children, 335	spinal cord tumors, 233–4 stroke, 137–42, 336
subarchanoid hemorrhage, 16	traumatic brain injury, 283
magnetic resonance imaging (MRI). See also	viral encephalitis, 126–7
neuroradiology	manic episodes, 239
computerized tomography compared to,	mannitol, and intracranial pressure, 242,
12–13	284
idiopathic intracranial hypertension	manometer, and lumbar puncture, 38–9
(IIH), 255, 257	manual evaluation, of shunt system, 318
nontraumatic spinal cord emergencies,	Marcus-Gunn pupil, 198, 211
265	marine toxins
spinal cord injuries, 302–3	envenomations, 399-401
malignant invasion, and radioculopathy,	ingestion of and seizures, 380, 391, 401
167	masseter muscles, palpation of, 5
malingering, and nontraumatic spinal cord	mass lesions, and dizziness, 81
emergencies, 271	measles, and encephalitis, 125
management. See also medications; surgery	medial longitudinal fasciculus (MLF), 202
altered mental status, 49–50	medial medullary syndrome, 133
back pain, 233–4	median inferior pontine syndrome, 133
brain abscess, 116–17	median longitudinal fasciculus (MLE), 70
brain tumors, 228, 229, 230-1, 232	median mononeuropathy, 169
cerebrovascular events in pregnancy, 368	median nerve, and compression
dementia, 221–5	neuropathies, 306–7, 308
dizziness, 87–90	medical complications, of cognitive deficits
dystonias, 151	in elderly, 223
eclampsia, 360–2	medical history. See also family history;
epilepsy in children, 338–41, 343, 346,	family members; friends
347	altered mental status, 372
gait disturbances, 109–12	dementia, 218
Guillain-Barré syndrome, 177	dizziness, 70–3
headache, 55–8	headache, 52–3
hemiballism, 153	movement disorders, 146
hypotonia in infants, 356	neuro-ophthalmological emergencies,
idiopathic intracranial hypertension	197
(IIH), 257–8	neuropsychiatry, 236, 237
infections in children, 327–8	seizures, 97–8
intracranial pressure, 247–50	stroke in children, 334–5
migraine, 58–60	weakness, 64
multiple sclerosis, 211, 215, 216	medical-legal issues
myasthenia gravis, 183–4	dementia, 225
myoclonus, 156	seizures, 107–8
neuropsychiatry, 236–8	medical records, and seizures, 108
nontraumatic spinal cord emergencies,	medications. See also analgesics; antibiotics;
265–71	anticholinergic drugs; anticonvulsant
normal pressure hydrocephalus, 261	drugs; antiepileptic drugs;
parkinsonism, 149	antihistamines; barbiturates;
peripheral nerve disorders, 163–73	benzodiazepines; corticosteroids;
peripheral nerve injuries, 304–6	diuretics; management; monoamine
seizures, 97, 102-3, 229, 338-41, 343,	oxidase inhibitors;
346, 347	psychopharmacologic medications;
shunt systems, 321–3	toxicity
sleep disorders, 274	Alzheimer's disease, 224
spinal cord injuries, 300	anisocoria, 208



Index 425

aseptic meningitis, 118 radioculopathy, 167 chorea, 152 seizures, 94, 101 delirium, 372 metabolic encephalopathy dizziness, 72, 79, 80, 88-90 alterations of mental status, 227 idiopathic intracranial hypertension coma and delirium, 48 (IIH), 253, 257 differential diagnosis, 228 EEG findings, 31 movement disorders, 156-8, 364 myasthenia gravis and pregnancy, 366 intracranial pressure, 246 patient history, 237 metabolic myopathy, 172 pupillary responses, 46 metastatic spinal cord tumors, 233, 270, status epilepticus, 105-6 tremor. 155 methanol, and neurotoxicology, 382, weakness, 64 383 memory, and dementia, 219. See also methylprednisolone, and spinal cord cognitive deficits injuries, 300 Meniere's disease, 85-6 metoclopramide, and migraine, 59, 60 meningeal syphilis, 120 midazolam, and seizures in children, 338, meningiomas, 4, 369 339, 340 meningitis. See also aseptic meningitis; middle ear disorders, and dizziness, 80 bacterial meningitis; fungal migraine meningitis; tuberculosis meningitis; in children, 334 diagnosis and management, 58-60 viral meningitis cerebral edema, 246 multiple sclerosis, 213 coma and delirium, 48 pregnancy, 363 headache, 55 prevalence, 52 idiopathic intracranial hypertension seizures, 101 (IIH), 257 Miller-Fisher syndrome (MFS), 203 lumbar puncture, 35, 36, 41 Mini-Mental Status Examination (MMSE), myasthenia gravis, 181 219, 223 prevalence of in children, 325 mitochondrial myopathy, 172 meningoencephalitis, 118 mixed nerves, and peripheral nervous meningovascular syphilis, 120 system disorders, 161, 164, 167 mental status examination. See also mollusks. See marine toxins altered mental status; cognitive monitoring, of intracranial pressure, deficits 249–50. See also fetal monitoring brain tumors, 226-8 monoamine oxidase (MAO) inhibitors dementia, 219 movement disorders, 158 dizziness, 74 serotonin syndrome, 384 elements of, 2-3 monoaminergic medications, and hypotonia in infants, 351 dizziness, 88, 89 neuro-oncological emergencies, 226-8 monocular confrontational testing, 198 monocular diplopia, 197, 199. See also neuropsychiatry, 238 stroke, 135 diplopia meperidine mononeuritis multiplex, 168 migraine, 60 mononeuropathy, 168-70, 387 opioid syndrome, 377 mononucleosis, and Guillain-Barré meralgia paresthetica, 365 syndrome, 176 metabolic acidosis, and neurotoxicology, mood, and mental status examination, 3 381 - 3mortality, and intracranial pressure values, metabolic disorders 242. See also death in children, 332 Morton's neuroma, 195 chorea, 152 motility, and neuro-ophthalmological dizziness, 81 examination, 198-9



### 426 Index

motion sickness agents, and myasthenia gravis anticholinergic effects, 376 diagnostic testing, 182-3 motor function differential diagnosis, 181-2 altered mental status, 46 diplopia, 203 disposition of patients, 184 dizziness, 76-7 neurological examination, 7-8 evaluation, 181 nontraumatic spinal cord emergencies, Guillain-Barré syndrome, 178 in infants, 352, 353-4 peripheral nerve injuries, 305 management, 183-4 seizures, 99 neuromuscular transmission, 170 spinal cord injuries, 287, 289 in pregnancy, 365-7 stroke, 136 prevalence of, 180 motor neuron disorders, 161, 173 weakness, 62, 65 movement disorders Mycobacterium tuberculosis, 327 common drugs and, 156-8 mycoplasma, and Guillain-Barré syndrome, evaluation, 146-7 176 hemiballism, 153 Mycoplasma pneumoniae, 327 hyperkinetic movement disorders, myelin disorders, and seizures, 94 149 - 53myelinopathy, and toxic neuropathies, neurotoxicology, 384, 386 388 myelography, and nontraumatic spinal parkinsonism, 147–9 pregnancy, 363-4 cord emergencies, 265 seizures, 101 myelopathy, and multiple sclerosis, 213 tics, 153 myoclonic seizures, 97 tremors. 153-5 myoclonus, and movement disorders, 148, multifocal myoclonus, 387 155-6 multi-infarct dementia (MID), 223, 224 myopathy multiple sclerosis (MS) neurotoxicology, 387, 389 description of, 210 systemic conditions, 172-3 differential diagnosis, 212-14 weakness, 65-6 disposition of patients, 215, 217 myotonic muscular dystrophy evaluation, 211 congenital form of, 355 laboratory tests, 214-15 definition, 172 magnetic resonance imaging (MRI), 25, myasthenia gravis, 182 26 myxedema coma, 182 management, 211, 215, 216 neurological examination, 211 naloxone neuropsychiatric symptoms, 239 depressed respiratory effort, 49, 371, 378 nontraumatic spinal cord emergencies, opioid syndrome, 377 267 - 8narcolepsy, 273, 274, 275 pathophysiology, 210-11 narcotic analgesics, and migraine, 60 mumps, and encephalitis, 125 National Acute Spinal Cord Injury muscles. See also motor function Randomized Controlled Trial hypotonia in infants, 351-2 (NASCIS), 300 neurological examination, 7-8 nausea, headaches in pregnancy, 363 peripheral nervous system disorders, 161 "near death," 407 muscle stretch reflexes, and seizures, 99 near-light dissociation (NLD), 198, 208 muscular dystrophy. See also Duchenne's neck trauma, and headache, 53 muscular dystrophy; myotonic neck and upper extremity pain, 187-90 muscular dystrophy necrotizing myopathy, 171 characterization of, 172 negative inspiratory force (NIF), 162 hypotonia in infants and congenital, negative myoclonus, 156 352 - 3Neisseria meningitidis, 113, 115



Index 427

neologisms, 136 anatomical basis of, 10-11 neonatal myasthenia gravis, 180, 367 dizziness, 73-7 neonatal seizures, causes of, 340 elements of, 2-10 neonatal status epilepticus, 338 medical history, 1–2 nerve conduction studies (NCS), and motor movement disorders, 147 neuron disease, 173 multiple sclerosis, 211 neuropsychiatry, 237-8 nerve root disorders peripheral nervous system, 161, 163-4 seizures, 98-9 "short form," 305 spinal cord injuries, 291 weakness, 65, 163 traumatic brain injury, 281-2 nerve sheath tumors, 310 neurological level, of spinal cord injury, nervous system injuries, and spinal cord, neurological presentations, common 291 - 3neuroimaging. See neuroradiology forms of neuroleptic malignant syndrome altered mental status, 43-51 dopamine replacement therapy, 149 dizziness, 68-90 movement disorders, 157 gait disturbances, 109-12 neurotoxicology, 383 headache, 52-60 neuroleptic drugs. See also haloperidol; seizures, 92-108 neuroleptic malignant syndrome weakness, 62-6 dementia and behavioral disturbances, neurological trauma. See trauma 2.2.4 neuromuscular disorders migraine, 60 evaluation, 162, 166 movement disorders, 157 peripheral nervous system, 161 neurological decompression sickness, 393, neuromuscular junction disorders, and weakness, 65 394 neurological disorders. See also trauma neuromuscular transmission, disorders of, brain tumors, 226-34 170 - 1central nervous system infections, neuromyelitis optica, 211 113 - 27neuronal dysfunction, and altered mental cerebrovascular disease, 131-43 status, 44 dementia, 218-25 neuro-oncological (N-ONC) emergencies alteration of mental status, 226-8 dizziness, 79 Guillain-Barré syndrome, 175-9 back pain, 232-4 cerebrovascular events, 229-31 idiopathic intracranial hypertension (IIH), 252-8definition of, 226 increased intracranial pressure, 242-50 focal neurological deficits, 231-2 movement disorders, 146-59 seizures and status epilepticus, 228-9 multiple sclerosis, 210-17 neuro-ophthalmological emergencies musculoskeletal and neurogenic pain, anisocoria, 205-8 differential diagnosis, 199-203 186 - 95myasthenia gravis, 180-4 evaluation, 197-9 neuromuscular disorders, 161-74 shunt dysfunction, 314 neuro-ophthalmological emergencies, visual loss, 203-5 197-209 neuropathic pain normal pressure hydrocephalus (NPH), definition, 186 260-1facial pain, 187 seizures, 100 low back and lower extremity pain, sleep disorders, 273-7 193 - 5neurological emergencies, of pregnancy, neck and upper extremity pain, 359-69 neurological examination thoracic and truncal pain, 191 altered mental status, 47 neuropraxia, 304, 306



### 428 Index

neuropsychiatry. See also psychiatric nonconvulsive seizures, generalized, 96-7 disorders; psychopharmacologic nonconvulsive status epilepticus medications in children, 338 diagnosis and disposition of patients, EEG findings, 32, 33 nonepileptic paroxysmal events, 99–102 evaluation and management, 236-8 nonfebrile seizures, in children, 343-7 scope of discipline, 236 nonpharmacologic treatment, of migraine, neuroradiology. See also computerized nonsteroidal anti-inflammatory drugs tomography (CT); magnetic resonance imaging (MRI) (NSAIDs), and pregnancy, 363. See also altered mental status, 49 analgesics arterial dissection, 14 nontraumatic spinal cord emergencies. See brain tumors, 27-8, 232 also back pain; spinal cord cerebral venoocclusive disease, 14-15 differential diagnosis and management, craniospinal trauma, 17-19 265 - 71degenerative disease of the spine, 21, 23 laboratory tests, 264-5 dizziness, 87 presentation of, 263-4 headache, 54 special challenges in diagnosis, 271 inflammatory disease, 23-7 nonvestibular system dysfunctions, and intracerebral hemorrhage, 16-17 dizziness, 71, 79 nontraumatic spinal cord emergencies, normal pressure hydrocephalus (NPH). See 265, 266 also hydrocephalus pediatric cervical spine, 301 differential diagnosis, 261 shunt systems, 319-21 evaluation, 260-1 spinal trauma, 19-20 laboratory tests, 261 subarachnoid hemmorhage (SAH), 15-16 management, 261 vascular disease, 13-14 normothermia, and brain death, 405 viral encephalitis, 126 nutrition, and differential diagnosis of neurosyphilis, 120 coma and delirium, 48. See also foods neurotoxicology. See also toxicity; toxins Nylen-Barany maneuver, 75 altered mental status, 371-8, 383 nystagmus, and dizziness, 74-5, 76, 81 coma and metabolic acidosis, 381-3 coma and respiratory depression, 378 obsessive-compulsive disorder, 153 headaches, 387, 390-1 obstructive sleep apnea (OSA), 273-4 importance of, 371 obturator nerve, and pregnancy, 365 movement disorders, 384 occipital nerve blockade, and migraine, 59, neuroleptic malignant disorder, 383 60 peripheral neuropathies, 384, 387 occupational toxins seizures, 378-81 drug-induced seizures, 380 serotonin syndrome, 384 headache, 391 nifedipine, and hypertension, 361 octopus, and marine toxins, 401 nimodipine, and subarachnoid ocular motor nuclei, 70 hemorrhage, 55 ocular motor system, and idiopathic intracranial hypertension (IIH), 252 nociceptive pain facial pain, 186-7 ocular myopathies, 182 lower back and lower extremity pain, ocular reflexes, and altered mental status, 192 - 346, 47 neck and upper extremity pain, 187–9 oculocephalic response, in coma, 46 thoracic and truncal pain, 191 oculomotor nerve palsy, 335 nocturnal myoclonus, 274 oculomotor nerves nonbacterial septic arthritis, 188 cranial nerve evaluation, 4 nonbacterial thrombotic endocarditis neuro-ophthalmological emergencies, (NBTE), 229-30 200 - 1



Index 429

oculopharyngeal muscular dystrophy, 182 papilledema odontalgia, 186 idiopathic intracranial hypertension odontoid fractures, 293-4 (IIH), 253-4 Ohm's law, and electricity, 391 increased intracranial pressure, 243 olfactory nerve, and cranial nerve neuro-ophthalmological emergencies, evaluation, 3-4 opening pressure, and lumbar puncture, 40 optic nerve evaluation, 4 ophthalmic agents, and anticholinergic paralysis. See also periodic paralysis effects, 376 nontraumatic spinal cord emergencies, ophthalmological disorders, and dizziness, spinal cord injuries, 289 opiate analgesics, and traumatic brain paramyxovirus, 122 injury, 284 parasomnias, 276 opioid syndrome, 377-8 parasympathetic system, and visual loss, optic nerve fenestration (ONSF), and 207 - 8idiopathic intracranial hypertension parent counseling, and seizures in children, (IIH), 257-8 341 - 3optic nerves, and cranial nerve evaluation, parietal lobe, and brain abscess, 117 parkinsonism drug-induced, 384, 157-8 optic neuritis, 205, 212 optic neuropathy, and idiopathic movement disorders, 147-9 intracranial hypertension (IIH), 258 Parkinson's disease oral contraceptives, and movement extrapyramidal symptoms, 224 disorders, 158 gait disturbances, 110 organophosphate poisoning, 373-4. See neuropsychiatric symptoms, 239 pain symptoms, 149 also pesticides Parkland Hospital (Dallas, Texas), 360-1 organ system dysfunction, and coma or delirium, 48 paroxysmal dyskinesias, 101 oromandibular dystonia, 150 Parsonage-Turner syndrome, 168 orthostatic tremor, 154 partial seizures, 93, 95-6 particle repositioning maneuver, 82, 83 osmotic agents, and shunt systems, 321 Osteichthyes, 399 pathological reflexes, and neurological osteoarthritis examination, 10 gait disturbances, 112 pathophysiological treatment, of vertigo, low back and lower extremity pain, 192 90 nociceptive pain, 187, 189 pathophysiology osteogenesis imperfecta, 352 of multiple sclerosis, 210-11 osteomyelitis, and infectious spondylitis, of traumatic brain injury, 279-81 patient history. See medical history 266 otitis media, 327 pediatric medicine. See children; infants otoscopy and otoscope pelecypods, 401 penetrating wounds, and peripheral nerve dizziness, 73 traumatic brain injury, 281 injuries, 304 ototoxins, and dizziness, 80 penicillin, resistance to, 328 outcome. See prognosis pentobarbital, and seizures in children, 339 peptic ulcer disease, 192 pain. See also back pain perception cluster headache, 57 mental status examination, 3 musculoskeletal and neurogenic, 186-95 of temperature or pain and sensory perception of and sensory examination, 9 examination, 9 sensory testing and peripheral nervous perched facet syndrome, 297 perilymph fistulas, and dizziness, 78, 86 system, 162-3 palatal elevation, 76 Perinaud's syndrome, 133



### 430 Index

periodic lateralized epileptiform discharges pituitary apoplexy, 205 (PLEDs), 31 plants and plant-derived substances periodic limb movement disorder, 274-5 anticholinergic effects, 375 periodic paralysis, 172, 178 drug-induced seizures, 379-80 peripheral nerve injuries headache, 391 compression neuropathies, 306-11 plasmapheresis, and myasthenia gravis, 184 evaluation and management, 304-6 peripheral nervous system disorders. See plexopathy, 164, 167 pneumatic otoscopy, and dizziness, 73, 78 also peripheral neuropathies characterization of, 161 poisoning. See neurotoxicology; toxicity; differential diagnosis and management, toxins 163 - 73poliomyelitis, 65 focused examination, 162-3 polymyositis (PM), 171 pregnancy, 364-5 polyneuropathy, 168 peripheral neuropathies, and postchiasmal disease, 204, 205 neurotoxicology, 384, 387, 388 posterior cord syndrome, 293 peripheral vestibular system, and dizziness, posterior fossa masses, 27 posterior interosseous syndrome, 190, 309 68 - 70peroneal mononeuropathy, 169 posterior tibial nerve, and compression pesticides. See also organophosphate neuropathies, 309 poisoning posthypoxic myoclonus, 156 drug-induced seizures, 380 postictal paralysis, 96 headache, 391 postpartum foot drop, 365 phakomatoses, and seizures, 94, 98 postural tremor, 157, 385 phased array surface coil technology, 28 povidine-iodine solution, and lumbar phenobarbital, and seizures, 106, 338, 339, puncture, 38 340, 341, 346 Power's Ratio, and atlanto-occipital dislocation, 293 phenothiazines, and dizziness, 88, 89 phenytoin, and seizures, 105, 106-7, 338, Prader-Willi syndrome, 352, 356 339, 340, 343, 346, 347, 361, 380. See pralidoxime, and cholinergic syndrome, also antiepileptic drugs phonation test, and vagus nerves, 6 prechiasmal visual loss, 204-5 physical examination prednisone dementia, 219 cluster headache, 58 dizziness, 73 giant cell arteritis, 57 headache, 53-4 headaches in pregnancy, 363 hypotonia in infants, 350-2 preeclampsia, 359, 362 infections in children, 327 pregnancy. See also eclampsia; infants neuropsychiatry, 237-8 idiopathic intracranial hypertension (IIH), 253 seizures, 98 stroke in children, 335 neurological emergencies, 359-69 physical restraint, and dementia, 218 seizures, 95 physical therapy, and dizziness, 90 prehospital care, for seizures, 97 physiological anisocoria, 208 premature infants, and hypotonia, 350 physiological myoclonus, 156 prescription drugs. See medications physiological tremor, 154 prevalence physostigmine, and anticholinergic back pain, 263 syndrome, 374 dementia in elderly, 218 picornovirus, 122 headache, 52 pinhole testing, of visual acuity, 198 meningitis in children, 325 pinprick sensation, and sensory myasthenia gravis, 180 seizures and epilepsy in children, 337 examination, 9 pituitary adenomas, 369 traumatic brain injury, 279



Index 431

preventive treatment, for headaches in psychopharmacologic medications. See also pregnancy, 363 antipsychotic drugs; lithium; primary brain injury, 279 neuroleptic drugs; tricyclic primary brain tumors, 227 antidepressants primary headache syndromes, 57-60 agitation and aggression, 240 primary spinal cord tumors, 233, 270, 271 dizziness, 72, 79, 89-90 primary tic disorders, 154 drug-induced seizures, 379 prochlorperazine, and migraine, 59, 60 headache, 390 prodomal symptoms, of seizures, 95-6 psychosis prognosis dementia and delirium, 220, 221 altered mental status, 50-1 inpatient evaluation and treatment, 239 seizures in children. 343 psychosocial factors, in neuropsychiatry, progressive myoclonic epilepsies, 94 240 progressive supranuclear palsy, 239 ptosis promethazine, and migraine, 59, 60 coma, 46 pronator drift test, 8 eve lids, 199 pronator syndrome, and median nerve, pulmonary infection, and myasthenia 306, 308 gravis, 183 pronator teres syndrome, 190 pupillary asymmetry, 45-6 pupillary light reflex propofol, and seizures, 106 altered mental status, 45-6 propoxyphene, and opioid syndrome, 377 propranolol, and pregnancy, 363 cranial nerve evaluation, 4, 7 proptosis, 199 pupils, and neuro-ophthalmological prostatitis, 192 emergencies, 197, 198, 207-8 protein, in cerebrospinal fluid (CSF), 40 purified protein derivative (PPD) test, 266 pursuit movements, and dizziness, 74 proteinuria, 359 provocative tests, and dizziness, 77-8 pyridoxine alcohol poisoning, 383 proximal muscle weakness, 62, 352 proximal shunt malfunction, 321 drug-induced seizures, 381 proximal tibial nerve, 310 peripheral neuropathies, 388 Pseudomonas auruginosa infectious spondylitis, 266 rabies, 122, 125 radial mononeuropathy, 169 meningitis, 115 pseudotumor cerebri (PTC), 252, 368-9 radial nerve, and compression pseudostatus epilepticus, 31 neuropathies, 309 pseudotumor cerebri, and headache, 56 radial nerve palsy, 190 psoriatic arthritis, 188 radial sensory nerve entrapment, 309 psychiatric disorders. See also anxiety; radial tunnel syndrome, 309 attention deficit hyperactivity radiation therapy disorder; depression; neuropsychiatry; encephalopathy, 228 obsessive-compulsive disorder; spinal cord tumors, 234 psychosis; schizophrenia radicular pain, 263 coma and delirium, 48 radiculoneuritis, and Lyme disease, 121 Huntington's disease, 152-3 radiculopathy, 163-4, 167 multiple sclerosis, 211, 217 radionuclide clearance shuntogram, 320 seizures, 100, 101-2 rapidly progressive dementia, 222 psychic symptoms, of seizures, 95 rapid-positioning nystagmus, 75 psychogenic pain, 192, 193 rapid-sequence intubation (RSI). See also psychogenic seizures, 101 endotracheal intubation psychogenic tremor, 155 intracranial pressure, 247 psychogenic unresponsiveness, and EEG traumatic brain injury, 283 rattlesnake envenomation, 397 findings, 31 psychomimetic drugs, and seizures, 101 receptive aphasia, 136



### 432 Index

saccidic eye movements, and dizziness, 74 recompression chamber, and diving-related injuries, 394 saccule, 69 recurrence, of seizures in children, 343, sacral fractures, 299-300 sacral sparing, and spinal cord injuries, recurrent hypersomnia, 276 red blood cells (RBCs), and lumbar sacroiliitis, 193 puncture, 39 St. Louis encephalitis, 124, 126 referrals, and dementia, 222. See also salicylate toxicity, 382 saline solution, fluid resuscitation and consultation reflexes, and peripheral nervous system, intracranial pressure, 248 163. See also deep tendon reflexes; Salmonella, and infectious spondylitis, 266 pupillary light reflex saphenous nerve, 310 reflux sympathetic dystrophy (RSD), 190 sarcoid granulomas, 268 rehabilitation, dizziness and vestibular, 90. sarcoidosis, and Guillain-Barré syndrome, See also physical therapy Reiter's syndrome, 188 Saturday night palsy, 190 relapsing-remitting disease (RRMS), 210, schizophrenia, onset of in late life, 221 213, 215 sciatic mononeuropathy, 169 REM sleep behavior disorder (RBD), 274, scorpion envenomation, 398-9 scorpionfish, 399-400 SCUBA diving Renal failure, and idiopathic intracranial dybarism and injuries related to, 393-5 hypertension (IIH), 253 reovirus, 122 vertigo, 90 Reptilia, and sea snakes, 399 sea snakes, 399, 400 "seat belt" injury, 290 resisted head turning test, and accessory secondary brain injury, 279-80 nerves, 6 respiratory failure and respiratory secondary brain tumors, 227 abnormalities secondary dystonias, 151 altered mental status, 44, 45, 371 secondary headache syndromes, 55-7 myasthenia gravis, 181 secondary tic disorders, 154 neurotoxicology, 378 sedative-hypnotic agents, 377 weakness, 66 sedative hypnotic syndrome, 374, 376 seizures. See also epilepsy respiratory fatigue, and spinal cord injuries, 287 alcohol withdrawal, 106-7 restless legs syndrome (RLS), 277, 363-4 alterations of mental status, 227 retinal granulomas, 268 brain tumors, 228-9 retrovirus, 122 coma and delirium, 48 "reverse Lasègue" sign, 194 differential diagnosis, 99-102 Reye's syndrome, and cerebral edema, 246 disposition of patients after, 107 rhabdomyolysis, 162 eclampsia, 360-2 rhabdovirus, 122 EEG findings, 31, 92 rheumatoid arthritis (RA) epileptic myoclonus, 156 nontraumatic spinal cord emergencies, evaluation and management of in children, 337-48 268-9 upper extremity pain, 188 events mimicking in children, 348 rigidity, and neurotoxicology, 383. See also infections in children, 328 neuroleptic malignant syndrome intracranial pressure, 249 riluzole, and ALS, 173 laboratory tests, 102 Rinne test, 6, 76 management, 102-3 Romberg sign, 111 medicolegal issues, 107-8 roving eye movements, and altered mental neurotoxicology, 378-81 status, 46 in pregnancy, 362 rubella, 188 traumatic brain injury, 284 ruptured neoplastic aneurysm, 230 types of, 92, 93



Index 433

selective serotonin reuptake inhibitors sleep terrors and sleepwalking, 274, (SSRIs), and serotonin syndrome, 384 senescent gait, 109 slit ventricle syndrome, 322 sensory disorders, and seizures, 101 SLUDGE (salivation, lacrimation, sensory function urination, defecation, gastric dizziness, 77 emptying), 373 neurological examination, 7, 9-10 slow-wave abnormalities, and EEGs, 32 nontraumatic spinal cord emergencies, snake envenomations, 396-8, 399 Snellen chart, and visual acuity, 211 peripheral nervous system, 162-3, 165, social history, and neurotoxicology, 372 305 sodium bicarbonate seizures, 99 alcohol poisoning, 383 stroke, 136 sedative hypnotic syndrome, 376 sensory organs, and peripheral vestibular sodium nitroprusside, and hypertension, system, 68-9 361 septic arthritides, 192 soft tissue injuries, and spinal cord injury, serum studies, and headache, 54 289-93 shellfish. See marine toxins space-occupying lesions, and lumbar "short form" neurological examination, puncture, 35, 36 305 spastic gait, 111 shoulder-hand syndrome, 190 spectrophotometry, and stroke, 137 shunt systems. See also hydrocephalus; speech, and glossopharyngeal nerve, 6. See intracranial pressure also aphasia components and malfunctions of, spinal cord. See also back pain; nontraumatic spinal cord emergencies; evaluation and differential diagnosis, spinal cord compression; spinal cord 314-21 lesions management, 321-3 infections, 265-7 shunt tap, 320 neurological examination, 10-11 SIADH (syndrome of inappropriate tumors, 27-8 secretion of antidiuretic hormone), 246 weakness and disorders of, 64-5 silastic lumboperitoneal shunt, and spinal cord compression. See also spinal idiopathic intracranial hypertension cord; spinal cord injuries; spinal cord (IIH), 257 lesions; spinal shock simple partial seizures magnetic resonance imaging (MRI), 13, management of, 103 22 types of seizures, 93, 95, 96 neuro-oncological emergencies and back sinusitis, and headache, 57 pain, 232-4 sixth nerve palsies, 201-2 sensory deficits, 264 skeletal muscle relaxants, and weakness, 65 anticholinergic effects, 376 spinal cord infarction, 191, 269-70 skull fractures spinal cord injuries. See also spinal cord; neuroradiology, 20 spinal cord compression; spinal shock; traumatic brain injury, 280, 281 spinal trauma Sjögren's disease, 215 children, 300-2 sleep aids, and anticholinergic effects, 376 dislocations and vertebral bony injuries, sleep deprivation, and seizures in 293 - 9pregnancy, 362 evaluation, 286-9 sleep disorders incidence of, 286 parasomnias, 276 magnetic resonance imaging (MRI), predisposition to trauma, 273-5 302 - 3types of, 273, 276-7 management, 300 sleep paralysis, 275 soft tissue injuries, 289-93 sleep-related panic attacks, 273 spinal shock, 289



### 434 Index

spinal cord injury without radiographic strength testing, and weakness, 162 abnormality (SCIWORA), 302-3 Streptococcus pneumonia spinal cord lesions. See also spinal cord; infectious spondylitis, 266 spinal cord compression meningitis, 113, 115, 116 Guillain-Barré syndrome, 178 penicillin-resistant strains, 328 neuroimaging, 232 stroke. See also cerebrovascular disease cerebral edema. 246 neuropathic pain, 189 nontraumatic spinal cord emergencies, childhood, 330, 333, 334-5 270 - 1coma and delirium, 48 primary and metastatic types of, 233 disposition of patients, 142 spinal cord syndromes, and nervous system evaluation, 135-7 injuries, 291-3 management, 137-42 spinal epidural abscess, 267 multiple sclerosis, 213, 214 spinal fractures, 293 pathophysiology of, 131-4 "spinal" headache, 56 pregnancy, 367 spinal muscular atrophy, 352 seizures, 101 spinal needle, and lumbar puncture, 39 stroke prevention and sickle cell disease spinal sarcoidosis, 268 (STOP) trial, 330 spinal shock, 271, 289 structural anisocoria, 208 spinal stenosis, 23, 194 structural choreas, 152 spinal trauma, and neuroradiology, 19-20 structural disease, and alterations of mental status in cancer patients, 227 spinal tuberculous arachnoiditis, 118 spine, degenerative disease of, 21, 23 Sturge-Weber syndromes, 98 spondylolisthesis, 23 subacute meningitis, 181 spontaneous blinking, and altered mental subacute pain, 263 subacute toxic neuropathy, 388 status, 46 spontaneous nystagmus, 74, 75 subarachnoid hemorrhage (SAH) sports, and clinical findings in concussion, brain tumors, 230 in children, 330 stab wounds, and peripheral nerve injuries, headache, 55 intracranial pressure, 243 staggering gait, 111 lumbar puncture, 35, 40, 41 Staphylococcus aureus neuroradiology, 15-16, 137 in pregnancy, 367-8 infectious spondylitis, 266 stroke, 134, 135 meningitis, 115, 116 Staphylococcus epidermidis, and shunt subcortical infarction, 333 infections, 323 subdural hematoma (SDH) status epilepticus. See also epilepsy; computerized tomography, 20 nonconvulsive status epilepticus craniospinal trauma, 17-18 brain tumors, 228-9 traumatic brain injury, 280 in children, 337-41 subhyaloid hemorrhage, 243 EEG findings, 31, 32, 33 substance abuse. See also alcohol intracranial pressure, 246 drug-induced seizures, 379 management of, 103-6 headache, 53, 390 steppage gait, 111–12 suction catheter passes, and intracranial steroids, and idiopathic intracranial pressure, 249 Sudek's atrophy, 190 hypertension (IIH), 257. See also corticosteroids sumatriptan stimulants, and movement disorders, 158 cluster headache, 57-8 stingrays, 399 migraine, 58-9, 60 "stocking-glove" pattern, and superficial peroneal nerve, and compression neuropathy, 311 polyneuropathy, 10, 77 stonefish, 399-400 superior sagittal sinus occlusion, 230



Index 435

supportive treatment Tensilon test, and myasthenia gravis, 184, carpal tunnel syndrome, 364 infections in children, 328 tension-type headache, 57 myasthenia gravis, 183 theophylline, and drug-induced seizures, supranuclear facial palsy, 170 380 - 1surgery. See also management thermal injuries, 392, 393 brain abscess, 116 thermoregulation, and brain death, 407 infectious spondylitis, 266 thiamine spinal cord infarction, 269–70 alcohol poisoning, 383 vertigo, 90 altered mental status, 371 swallowing, and glossopharyngeal nerve, 6 thiopental, and seizures in children, 339 swinging flashlight test, 198 third nerve palsy, 200, 201, 207-8 thoracic burst fracture, 298 Sydenham's chorea, 151 symmetric eye deviation, and altered thoracic compression fracture, 298 mental status, 46 thoracic fracture-dislocation injuries, 298 sympathetic system, and visual loss, 206-7 thoracic outlet syndrome, 190, 308 symptomatic epilepsies thoracic pain, 191 causes of seizures, 94 thoracic spine injuries, 298-9 EEG findings, 31 thoracolumbar junction fracture, 298-9 symptomatic myoclonus, 156 thought disorders, and mental status syncope examination, 2 EEG findings, 31 thrombocytopenia, 230, 360 seizures, 100-1 thrombolytics, and stroke, 139, 141 syphilis. See neurosyphilis; syphilitic thymectomy, 184 labyrinthitis thymus, and myasthenia gravis, 180, 184 syphilitic labyrinthitis, 84-5 thyroid eye disease, 199 systemic disorders thyrotoxicosis, 172 dizziness, 79, 80 tics headache, 53, 54 evaluation and management of, 153 myopathy, 172-3 phenomenology of, 148 seizures, 100-1 time course, and symptoms of dizziness, 71 systemic lupus erythematosus (SLE), 176, Tinel's sign, 308 tinnitus, and dizziness, 72, 85 systemic vascular disease, in children, 331 tissue Plasminogen Activator (tPA), and stroke, 139, 141 tacrine, and Alzheimer's disease, 224 togavirus, 122 tardive disorders, and neuroleptics, 157 tone, of muscles, 7, 8 tardive dyskinesia (TD), 158, 386 tongue protrusion, and hypoglossal nerves, tarsal tunnel syndrome, 309 6 - 7taste test, 5 tonic seizures, generalized, 96, 97 teardrop fracture, 295, 296 torticollis, 150-1 Technetium shuntogram, 317 Tourette's syndrome, 153 tegmental syndrome, 133 toxic encephalopathy temperature, perception of and sensory alterations in mental status, 227 examination, 9. See also hyperthermia; coma and delirium, 48 hypothermia; thermoregulation management, 228 temperomandibular joint disorder, 57 toxic envenomation temporal lobe, and brain abscess, 117 headache, 391 temporo-mandibular joint dysfunction, myopathies, 389 scorpions, 398-9 tendinitis, and pain, 192, 193 seizures, 380 "tennis elbow," 189 snake bite, 396-8 tenosynovitis, and pain, 192, 193 weakness, 64



### 436 Index

toxicity, of medications. See also neuroradiology, 18, 281, 282-3 pathophysiology, 279-81 neurotoxicology; toxins antiepileptic drugs and children, 347-8 seizures, 94 magnesium sulfate and eclampsic traumatic neuropathies, and pregnancy, seizures, 361 toxic labyrinthitis, 84 traumatic spondylolisthesis, 294 traumatic tap, and lumbar puncture, 40 toxicology screening, and altered mental trauma-triggered migraine, 334 status, 49, 372 toxins. See also neurotoxicology; toxic treatment. See adjunctive therapy; envenomation; toxicity management; medications; chorea. 152 nonpharmacologic treatment; hypotonia in infants, 355 pathophysiological treatment; seizures, 95, 101 preventive treatment; supportive tremor, 155 treatment; surgery weakness, 64 treatment-related cerebrovascular toxoplasma encephalitis, 117 disorders, and brain tumors, 230 toxoplasmosis treatment-related encephalopathy, and HIV-related infections, 117-18 alterations in mental status, 227 neuroradiology, 24, 26 tremors traction injuries, and peripheral nerve evaluation and management of, 153-5 injuries, 306 phenomenology of, 148 transarterial angiography, and tricyclic antidepressants. See also subarachnoid hemorrhage, 16 antidepressants transcatheter angiography, 14 anticholinergic effects, 376 transcranical Doppler examination, and dizziness. 89 drug-induced seizures, 381 intracranial pressure, 250 transient global amnesia, 101, 220 movement disorders, 158 transient ischemic attacks (TIAs) trigeminal nerve, and cranial nerve antiplatelet therapy, 138 evaluation, 4-5 definition of, 131 trigeminal neuralgia, 187 triple flexion reflex, and nontraumatic magnetic resonance angiography (MRA), spinal cord emergencies, 271 transmission neuropathy, and toxic trochlear nerve, and neuropathy, 388 neuro-ophthalmological emergencies, transverse myelitis, 65, 267, 384 201 trauma. See also craniospinal trauma; head truncal ataxia, 8 trauma; traumatic brain injury truncal pain, 191 in children, 332–3 tuberculosis, of spine, 266-7 coma and delirium, 48 tuberculosis meningitis (TBM) dizziness, 80, 81 diagnosis and treatment of, 118-19 peripheral nerve injuries, 304-11 lumbar puncture, 41 radioculopathy, 167 tuberous sclerosis, 98 sleep disorders and predisposition to, Tullio phenomenon, 73 273 - 5tympanic membrane spinal cord injuries, 286–303 displacement of and intracranial traumatic brain injury (TBI). See also brain; pressure, 250 head trauma dizziness, 73 in children, 284 type II decompression sickness, 393 evaluation, 281-2 incidence of, 279 ulnar mononeuropathy, 169 intracranial pressure, 246, 249 ulnar nerve, and compression management, 283 neuropathies, 308-9 neuropsychiatric symptoms, 239 ulnar neuropathy, 190



> Index 437

ultrasound imaging, of muscle in infants, vertebrobasilar insufficiency (VBI), 86 vertical diplopia, 201 uncal herniation, 245 unilateral facet dislocation, 295-6 definition of, 68 unresponsiveness, and brain death, 405, upper airway resistance syndrome (UARS), 274 vestibular nuclei, 70 urinary tract infections, and multiple sclerosis, 215, 217 utricle, 69 71, 76, 80 vagus nerves, and cranial nerve evaluation, vestibular test. 5 valproic acid (VPA), and seizures in children, 340, 346, 347-8 dizziness, 70, 76 valproate migraine, 59, 60 seizures in children, 339 viral labyrinthitis, 84 Valsalva maneuvers, and dizziness, 73, 78 valves, of shunt system, 315 HIV-related, 117 vancomycin, and children, 328 vasospastic disorders, in children, 332 vascular disease visual loss dizziness. 80, 86-7 neuroradiology, 13-14 197-8 seizures, 95 vascular injuries, and spinal cord injuries, vasculitis, in children, 331 visual loss vasculopathic cranial nerve, and neuro-ophthalmological emergencies, vasculopathies, in children, 331 198 vasogenic edema, 245, 246, 249 "vegetative state," and coma, 43 field Venereal Disease Research Laboratory defined, 197 (VDRL), 120 ventilation, controlled, 242 (IIH), 252, 258 ventricular fibrillation, and electrical injuries, 391 ventriculitis, 323 203 - 5vertebral arteries, and vascular injuries, 290, 333 vertebral basilar artery occlusion, 335 vertebral bony fractures, 295 vertebral bony injuries, and spinal cord waddling gait, 112 injuries, 290 vertebral discitis, 27. See also disc herniation vertebral dissection, and headache, 56 weakness vertebral metastases, 27-8 vertebral osteomyelitis, 27, 192-3

vertigo. See also dizziness pathophysiological treatment of, 90 vestibular system disorders, 70, 71 vestibular neuronitis, 83-4 vestibular rehabilitation, 90 vestibular schwannomas, 86 vestibular suppressants, 88, 89 vestibular system disorders, and dizziness, vestibulo-ocular reflex (VOR), and viral encephalitis, diagnosis and management of, 121-7 viral meningitis. See also meningitis lumbar puncture, 41 visual acuity. See also eye; visual field; multiple sclerosis, 211 neuro-ophthalmological emergencies, optic nerve evaluation, 4 visual field. See also eye; visual acuity; defects and cranial nerve evaluation, 7 intracranial pressure, 243 neuro-ophthalmological emergencies, visual loss. See also eye; visual acuity; visual idiopathic intracranial hypertension multiple sclerosis, 212 neuro-ophthalmological emergencies, pseudotumor cerebri in pregnancy, 369 vital signs, and altered mental status, 44 vitamin K, and coagulopathy, 362 Wallenberg's syndrome, 87, 133, 207 warfarin, and children, 336

water intoxication, 246 acute neuromuscular respiratory failure,



### 438 Index

weakness (cont.) brachial plexus, 167 definition, 62 differential diagnosis, 64-6 dizziness and facial, 72 evaluation, 62-4 Guillain-Barré syndrome, 176 hypotonia in infants, 351–5 myasthenia gravis, 181 nontraumatic spinal cord emergencies, strength testing, 162 Weber test, 6, 76 Wegener's granulomatosis, and Guillain-Barré syndrome, 176 weight loss, and idiopathic intracranial hypertension (IIH), 257 Werdnig-Hoffmann syndrome, 352, 356

Wernicke's encephalopathy, 105
Western equine encephalitis, 124, 126
"whiplash," and acute cervical strain, 290
white blood cells (WBCs), and lumbar puncture, 39, 329
withdrawal
opioid syndrome, 378
seizures and alcohol abuse, 101, 106–7, 379
Wright maneuver, and thoracic outlet syndrome, 190
xanthochromia, 40, 54, 137

zone I, II, and III fractures, 299–300 zone of partial presentation, and spinal cord injury, 287