Index

ABCD2 score, 29–30, 30t risk stratification, 30t Abeta, 137, 139–140 in CSF, 142 drug research and development, 155-156 Acetaminophen, 89, 102, 126, 205, 206 Acetazolamide, 191 Acetylcholine, 5 Acetylcoenzyme A, 21 Acute arterial occlusion, 41 Acute lung impairment, SAH and, 125 Acute stroke of other determined etiology (ASODE) as cause of ischemic stroke, 40 Adenosine, and cerebral blood flow, 22 Adenosine triphosphate (ATP), 21 Adventitia, 15, 16f AEDs. See Automated external defibrillators (AEDs) AHA. See American Heart Association (AHA) Alcohol consumption, and ICH, 80 Alzhiemer Disease (AD), 136 and Abeta, 137 and CAA, 144-145

American Heart Association (AHA) ICH management, guidelines for, 148-149, 150t American Stroke Association (ASA) ICH management, guidelines for, 148-149, 150t Amphetamine, and ICH, 80 Amyloid β (A β) peptide immunization therapy, 155 Amyloid precursor protein (APP), 137, 139, 155 Analgesics for blood pressure management, 102, 125-126 pain with, treatment of, 126 for migraine, 205-206 Anesthesia in endovascular treatment of AVM, 109 Aneurismal/Aneurysmal SAH, 82 Aneurysms, 101. See also Subarachnoid hemorrhage berry, 103, 104f coil embolization of, 103-105, 104f post-procedural care, 105 fusiform, 103, 104f

Evidence-Based Nursing Care for Stroke and Neurovascular Conditions, First Edition. Edited by Sheila A. Alexander.

 ${inom{\circ}}$ 2013 John Wiley & Sons, Inc. Published 2013 by John Wiley & Sons, Inc.

Aneurysms (Continued) location of, CTA and, 100-101 mycotic, and ICH, 81 post-operative care, 103-105 pre-operative/pre-procedural care, 101–102 rebleeding, monitoring for, 114 and subarachnoid hemorrhage, 100 surgical management, 102-103 Angiography, conventional, 216 Anterior cerebral arteries, 17 Anterior communicating artery, 18 Anterior pituitary gland, 11 Anticardiolipin antibody (aCL), 239 Anticoagulation, for stroke prevention, 44-45 Antidepressants, 231 Antigen-specific response, maladaptive, 263 Antihypertensives, and stroke, 63 Antiplatelet therapy, for stroke prevention, 45-46 Antiphospholipid syndrome (APS) antibodies, 234 complications, 237t consensus criteria, 236t defined, 235 historical perspective, 234 laboratory studies interpretation, 240t laboratory testing, 239-240 pathogenesis, 237-238 prevalence, 238-239 systemic complications, 237 treatment recommendations by clinical manifestation, 242, 250t types, 235 Aortic aneurysm, risk factors, 272

Apolipoprotein E (ApoE), 76, 137 APP. See Amyloid precursor protein (APP) Aricept, 231 Arterial blood pressure and cerebral blood flow, 23 Arterial dissection and neck trauma, 42 Arteries. See Blood vessels Arteriosclerosis, 226 Arteriovenous malformation (AVM), 79, 79f, 174-178. See also Subarachnoid hemorrhage. blood flow patterns, MRI and, 98 defined, 174 diagnosis of, 175-176 embolization of, 177-178 endovascular treatment of, 109-110 post-procedural care, 110 epidemiology, 174-175 and intraparenchymal hemorrhage, 106 location of, CTA and, 100-101 management of, 175 monitoring of, 175-176 pathophysiology, 175 radiotherapy for, 110, 178 resection postoperative care, 108 preoperative/pre-procedural care, 107 surgical procedure, 107-108 rupture, risk of, aging and, 96 securement, 105-106 and subarachnoid hemorrhage, 100 surgical treatments, 177 Artery-to-artery embolism, 42 Asherson's syndrome, 245

Index

ASA. See American Stroke Association (ASA) ASODE. See Acute stroke of other determined etiology (ASODE) Asphyxia, 37 Aspirin and hazard risk for lobar ICH reoccurrence, 154 for migraine, 205, 206 for primary stroke prevention, 45-46 for secondary stroke prevention, 46 - 47ticlopidine, 218 Astrocytic feet, 5, 6f Atherosclerosis, and cerebral aneurysms, 167 ATP. See Adenosine triphosphate (ATP) ATPIA2 gene, 197 Atrial fibrillation and embolic stroke, 43-44 Automated external defibrillators (AEDs), 37 Axon, neuron, 2, 3f myelination of, 7 Basal ganglia, 12 Basilar artery, 18 Bedsores in SAH patients, 128-129 Berry aneurysms, 103, 104f Binswanger's disease demyelination of axons

diagnosis, 228-229

prevention, 229-230

Biomarkers, CAA, 142 Bipolar neuron, 3f

pathophysiology, 226-227

Biofeedback, and migraine, 205

symptom management, 230-231

Blacks subarachnoid hemorrhage in, 96 Bleeding into brainstem region, 179 subarachnoid hemorrhage and, Blood brain barrier, 15 Blood pressure (BP) analgesics and, 102 management, 63 and analgesia, 125-126 and blood vessels patency, 59 and fluid volume, 127 and interventional therapy, 59 IV thrombolytics and, 53, 54t, 58-59 in SAH patients, 125-126 vasoactive medications, 126-127 systolic, 126 Blood vessels, 15, 16f, 17f assessment, 31 brain anterior cerebral arteries, 17 anterior communicating artery, 18 basilar artery, 18 internal carotid arteries, 15-16 middle cerebral arteries, 16-17 posterior cerebral arteries, 18 posterior communicating arteries, 18-19 vertebral arteries, 18 patency, and BP management, 59 Bosentan, 116 Boston criteria for diagnosis of CAA, 140, 141t Bradycardia as physiologic effect of strangulation, 38

Brain, 7-14. See also Central nervous system (CNS) blood vessels anterior cerebral arteries, 17 anterior communicating artery, 18 basilar artery, 18 internal carotid arteries, 15-16 middle cerebral arteries, 16-17 posterior cerebral arteries, 18 posterior communicating arteries, 18-19 vertebral arteries, 18 brainstem, 13-14, 14f cerebellum, 12, 13f development, astrocytes and, 5 diencephalon structures, 11-12, 12f lobes, 7, 10f frontal, 9-10 occipital, 10f, 11 parietal, 10, 10f temporal, 10f, 11 oxygen delivery to, 21 structure, 7-14 temperature, 23 Brainstem, 13-14, 14f Brain tumor, 80, 80f Burrholes, multiple, 221 Buspirone, for migraine treatment, 208-209 CAA inflammation (CAAI), 145-147, 145t diagnosis, 146 treatment, 146-147 CACNA1A gene, 197 CADASIL. See Cerebral Autosomal Dominant Arteriopathy with Subcortical Infarcts and

Leukoencephalopathy (CADASIL) Caffeine, and migraine, 206-207 Calcium channel blockers for treatment of cerebral vasospasm and DCI, 115 cAMP. See Cyclic-adenosine monophosphate (cAMP) Carbon dioxide and cerebral blood flow, 21-22 Carbon monoxide, and stroke, 39 Cardiac action potential phases of, 3 Cardiac arrest and stroke, 36-37 treatment of, 37 Cardioembolism (CE), 28 as cause of ischemic stroke, 40, 42-43 Cardiolipin, 241 Cardiovascular system, Thrombosis, 243 Carotid stenosis and stroke, 47 Carotid Ultrasound (CUS), 31 Catastrophic, 245 Catecholamine, subarachnoid hemorrhage and, 97 Catheters intraparenchymal, 112, 114 intraventricular, 112 Cavernous angiomas, 79-80 CCM. See Cerebral cavernous malformation (CCM) CD4 positive cell type, 262 Cell body, neuron, 2, 3f Cells central nervous system, 2-7 astrocytes, 5, 6f microglia, 7, 8f epithelial, 15, 16f schwann, 7

	Index
Central nervous system (CNS),	types of, 137, 138 <i>t</i>
2–7. See also Brain	warfarin use in patients, 154
cells of, 2–7	Cerebral aneurysms
,	in Circle of Willis, 165, 166f
astrocytes, 5, 6f	coil embolization of, 172–173
microglia, 7, 8f neurons, 2–5, 3f, 5f	defined, 163
definition and classification,	epidemiology, 163–164, 163f
260	1 055
	identification of, MRI and, 97–98 location of, 171
diagnostic approach, 264	,
epidemiology and pathogenesis,	monitoring of, 168–171
260–262	pathophysiology, 165, 167
historical perspective, 260	post-operative care, 174
pathophysiology, 262	rupture, prevention of, 168
prognosis, 273	size of, 165, 169–171
Central venous pressure (CVP)	and subarachnoid hemorrhage,
monitoring, with crystalloid	96–97
fluid, 118, 127	surgical procedure for, 173–174
triple H therapy and, 117	Cerebral aquaduct, 13
Cerebellum, 12, 13 <i>f</i>	Cerebral autoregulation, 20
Cerebral amyloid angiopathy	Cerebral aneurysms, 216
(CAA), 78, 135–156	Cerebral Autosomal Dominant
and Alzhiemer disease, 144–145	Arteriopathy with
clinical manifestations of, 141t	Subcortical Infarcts and
cortical ischemia and	Leukoencephalopathy
microinfarcts, 143	(CADASIL), 185–191
defined, 136	diagnosis of
diagnosis of, 140–147	genetic counseling for, 189
biomarkers, 142	genetic testing for, 188
Boston criteria, 140, 141 <i>t</i>	MRI for, 189
laboratory tests, 143	psychological counseling for,
neuroimaging, 140, 142	190
epidemiology, 136–137	skin biopsy testing for, 188
historical overview, 136	overview, 186
and ICH, 75	pathophysiology, 186–187
and intracerebral hemorrhage,	and stroke, 190
147–153, 150–152 <i>t</i>	symptoms, 187–188
issues in, 154	management of, 190–191
and leukoencephalopathy, 144	Cerebral blood flow, 15, 219
microbleeds, 144	acidotic blood and, 22–23
older adults, prevalence in, 137	adenosine and, 22
pathophysiology, 137, 139–140	carbon dioxide and, 21–22
risk factors for, 147	factors influencing, 19–23

Index

Cerebral blood flow (Continued) glucose and, 20-21 nitric oxide and, 22 oxygen and, 21 pressures and, 23 Cerebral cavernous malformation (CCM), 179-182 defined, 179 diagnosis of, 180-181 epidemiology, 179 medications for, 181 pathophysiology, 179-180 propranolol and, 182 statins and, 182 stereotactic radiosurgery for, 182-183 surgical intervention for, 181-182 Cerebral contusion, 38 Cerebral cortex, 7-8 diencephalon, 11-12, 12f Cerebral edema, 124 subarachnoid hemorrhage and, 97 Cerebral microbleeds (CMB), 142, 144 Cerebral perfusion, 57-58 pressure, 23 Cerebral vasospasm neurologic monitoring, 114-124 subarachnoid hemorrhage and, 96-97 symptoms of, 114-115 treatment of, 115-124 calcium channel blockers for, 115 endothelin receptor antagonist for, 116 intra-arterial agents for, 118–124, 119–122t

magnesium for, 116-117 triple H therapy for, 117-118 Cerebrospinal fluid (CSF) Abeta in, 142 head injuries and, 39 Cerebrovascular disease (CVD), 144, 145 CHADS2 scores, 44 Choking, and stroke, 38 Cigarette smoking and cerebral aneurysms, 168 and ICH, 74 and stroke, 49 and subarachnoid hemorrhage, 98 Circle of Willis, 17f, 19 cerebral aneurysms in, 165, 166f Clazosentan, 116 Clopidogrel, 46, 248t CMB. See Cerebral microbleeds (CMB) Coagulopathy, warfarin and, 78 Cocaine, and ICH, 80 Cognitive behavioral therapy for migraine treatment, 202, 205 Cognitive impairment, and CADASIL, 187 management of, 191 Coil embolization of aneurysm, 103-105, 104f, 172-173 post-procedural care, 105 Collateral blood vessels, 214 Complete blood cell count (CBC), 247 Computed tomographic angiography (CTA), 31 for cerebral aneurysms monitoring, 169 subarachnoid hemorrhage, 100 - 101

	Index
Computed tomography (CT), 77.	Dabigatran, 45
See also Neuroimaging.	DCI. See Delayed cerebral
for arteriovenous malformation	ischemia (DCI)
monitoring, 175–176	Deep intravenous sedation
for cerebral aneurysms	in endovascular treatment of
monitoring, 168–169	AVM, 109
findings, post-cardiac arrest, 37	Deep vein thrombosis (DVT), 62
and hypertensive ICH locations,	ICH and, 88
77	Delayed cerebral ischemia (DCI),
and ICH diagnosis, 82	97
in subarachnoid hemorrhage,	neurologic monitoring, 114-124
99–100, 100f	symptoms of, 114–115
transient ischemic attacks,	treatment of, 115-124
30–31	calcium channel blockers for,
Computed tomography perfusion	115
(CTP), 55	endothelin receptor
Constraint induced therapy, 65	antagonist for, 116
Coronary artery disease (CAD),	magnesium for, 116–117
243	triple H therapy for, 117–118
Corpus callosum, 7	Dendrites, neuron, 2, 3f
Cortical spreading depression	Dendritic cells, 263
(CSD), 197	Depolarization phase, cardiac
Corticosteroid tapering, 270	action potential, 3
Cranial nerves, 13, 14	Depression and anxiety, 231
Cranium, 38	Diabetes, and stroke, 49
CREST trial, 47	Diazepam, for migraine treatment
CUS. See Carotid Ultrasound	209
(CUS)	Diet
CVD. See Cerebrovascular disease	guidelines, for stroke
(CVD)	prevention, 49
Cyclic-adenosine monophosphate	Diffuse axonal injury, 38–39
(cAMP)	Diffusion Weighted Imaging
production of, adenosine and,	(DWI)
Cyclic veriations 261	MRI with, 31 Digital subtraction angiagraphy
Cyclic variations, 261	Digital subtraction angiography
Cyclophosphamide (Rituximab),	(DSA)
248t	for cerebral aneurysms
Cytokines	monitoring, 168
microglia and, 7	Dihydroergotamine, 207
subarachnoid hemorrhage and,	Dipyridimole, 46
97	Donepezil, 191

Fadusil, and CCM, 182

,

Index

Do Not Resuscitate (DNR) orders, 76, 149 Down syndrome, 136 Drowning, and stroke, 37 DSA. See Digital subtraction angiography (DSA) DVT. See Deep vein thrombosis (DVT) Dysphagia, 61 Embolic TIA/stroke, 28, 42–43 prevention, 43-45 Embolization of arteriovenous malformation, 177-178 Emergency departments (ED), 85 nurses, 50, 52 and treatment of acute ischemic stroke, 50 Emergency medical service (EMS), 85 Encephaloduroarteriosynangiosis (EDAS), 220 Encephalomyosynangiosis, 220 Endothelial progenitor cells, 215 Endothelin receptor antagonist for treatment of cerebral vasospasm and DCI, 116 Epithelial cells, 15, 16f and NOS production, 22 Ergot alkaloids, and migraine, 207-208 Ergotamine, 207 Erythrocyte sedimentation rate (ESR), 268 Exercise, and migraine, 202 Extended cardiac monitoring, 31 atrial fibrillation, 44 Factor VIIa (FVII), 87

Falx cerebrii, 7 Fasting lipid profile, 32 Fasudil Hydrochloride, 121t Females subarachnoid hemorrhage in, 96 Fibroblast growth factor, 215 Flashing/bright lights, and migraine, 200 Fresh frozen plasma (FFP), 87 Frontal lobes, 9-10, 10f Fusiform aneurysms, 103, 104f Gastrointestinal (GI) tract evaluation of SAH patients, 127-128 of stroke patients, 61 Genetic counseling for CADASIL diagnosis, 189 Genetic Information Non-discrimination Act (GINA), 188 Genetic testing for CADASIL diagnosis, 188 Giant cell Arteritis (GCA), 263t clinical manifestations, 265t features, 263t onset patterns of clinical and subclinical variants, 267 treatment, 269-270 Ginkgolide B, for migraine treatment, 208 Glasgow Coma Scale (GCS), 86, 148 Glioblastoma multiforme and ICH, 80 Glucocorticoid-sparing strategy, 271 Glucose and cerebral blood flow, 20-21 management, during stroke

treatment, 60

286

Factor V Leiden mutation

and thrombophilia, 43

	Index
GLUT-1, transporter molecule, 20	Hyperhomocystinemia, 198
GOM. See Granular Osmeophylic Material (GOM)	Hyperlipidemia, 63 and stroke, 48–49
Gradient echo (GRE), 180	Hyperpolarization phase
Granular Osmeophylic Material (GOM), 188	cardiac action potential, 3
Granulomatous inflammation, 271	Hypertension CAA and, 154
Gyrus, 8	categories, 48
Gyrus, o	management of, 63
Haptoglobin, fibrinogen, 262	as risk factor for ICH, 74
HDL-C. See High-density	and stroke, 48
lipoprotein cholesterol	Hypertensive ICH, 77–78, 78f
(HDL-C)	STICH <i>vs.</i> , 77–78
Headache Impact Test (HIT-6),	Hypoglycemia, 60
199	and migraine, 200
Head injury, and stroke, 38–39	Hyponatremia, 123–124
HELLP syndrome, 243	Hypo-osmolar state, 123
Hematologic diseases	Hypotension
ICH and, 79	and AVM, endovascular
Hematoma, 83–84	treatment of, 109
Hemispheres, brain, 7–8	as physiologic effect of
Hemodynamic	strangulation, 38
stability, stroke and	Hypothalamus, 11
BP management, 58–61	Hypothermia, 221
neurologic management,	
56–58	Ibuprofen, 102
respiratory management, 58	ICH. See Intracerebral hemorrhage
Hemorrhagic stroke, 214	(ICH)
Hemosiderin, 140, 142, 180	Immunoglobulin (IV route), 248t
Heparin, 248 <i>t</i>	Increased intracranial pressure
HHH. See Triple H therapy (HHH)	(ICP)
High-density lipoprotein cholesterol (HDL-C), 49	head injuries and, 39 monitoring and management of
	111–114
HIT-6. See Headache Impact Test (HIT-6)	symptoms of, 57, 112, 113t
Human leukocyte antigen (HLA),	Infarction
261	and CAA, 143
Hydrocephalus, 118, 123	Injuries
treatment of, 123	head, and stroke, 38–39
Hydroxychloroquine (plaquenil),	Intensive care unit (ICU), 85
248 <i>t</i>	Interleukin-6 (IL-6), 262
Hyperglycemia, 60	Internal carotid arteries, 15–16

International Headache Society, 198 Interventional therapy BP management in, 59 for stroke treatment, 54-55 Intra-arterial injectable therapies cerebral vasospasm treatment and DCI, 118-124, 119-122t Intra-arterial therapy, for stroke treatment, 54-55 Intracerebral hemorrhage (ICH), 73-89 anticoagulant therapy-induced, 78 AVM and, 79, 79f CAA and, 75 cavernous angiomas, 79-80 cerebral amyloid angiopathy and, 147-153, 150-152t clinical presentation, 82-84 defined, 74 diagnosis of, 82 drug-use-associated, 80 and DVT, 88 fever after, 88-89 glioblastoma multiforme and, 80 and hematologic diseases, 79 hemorrhagic conversion, 81 hypertensive, 77-78, 78f incidence of, 74 lobar, 78 locations, 77 management of, 85-89, 149, 151t AHA/ASA guidelines for, 148–149, 150t mortality rate, 75-77 mycotic aneurysm and, 81 neoplasm and, 80 nursing care, 152, 152t prognosis, 75-77 rate of recurrence, 84 rehabilitation, 89, 153

risk factors, 74-75 score, 75, 76t signs and symptoms of, 148 traumatic, 81 and venous sinus thrombosis, 80 Intraparenchymal catheters, 112, 114 Intraparenchymal hemorrhage and AVM, 106 Intraventricular catheters, 112 Intraventricular hemorrhage (IVH), 77 Ischemia CAA and, 143 TIA and, 27 Ischemic stroke. See Stroke IVH. See Intraventricular hemorrhage (IVH) IV t-PA therapy, 50-54 blood pressure management in, 53, 54t, 58-59 inclusion/exclusion criteria for, 50, 53t Lactate, 20 Large artery atherosclerosis (LAA), 27-28, 40-41 as cause of ischemic stroke, 40 Large-vessel vasculitis, 272 12-lead electrocardiogram (ECG), 31 Leukoencephalopathy CAA and, 144 Lifestyle and cerebral aneurysm, 98 and stroke, 49-50 Lipid profile fasting, 32 Lipids management of, 63-64 LMWH. See Low molecular weight heparinoids (LMWH)

Index

Magnetic resonance perfusion (MRP), 55 Mean arterial blood pressure, 23 Medications for CCM, 181 for migraine, 202, 205-209 Medulla, 14 Memantine, 231 Merci retrieval device, 55 Methotrexate, 271 Methylenetretrahydrofolate reductase (MTHFR) gene, 197-198 Metoprolol, for migraine treatment, 208 Microangiopathy, 28, 41 Microbleeds. See Cerebral microbleeds (CMB) Midbrain, 13 Middle cerebral arteries, 16-17 Migraine, 195-209 analgesics for, 205–206 and CADASIL, 187 caffeine and, 206-207 diagnosis of, 198-199 criteria for, 198 environmental treatment of, 205 ergot alkaloids and, 207-208 frequency, assessment of, 198–199 genes associated with, 197 management of, 190–191 medications for, 202, 205-209 overview, 196 pathophysiology, 196-198 prevention of, 199–209, 201t, 203–204*t* anti-epileptic medication for, 202 cognitive behavioral therapy for, 202, 205

Migraine (Continued) serotonin receptor antagonists for, 200, 201t tricyclic antidepressants for, 202, 203–204*t* triggers, identification and avoidance, 199-200 steroids and, 208 Migraine Disability Assessment (MIDAS), 199 **Migraine** Prevention Questionnaire 5 (MPQ-5), 198-199 Milrinone (Primacore), 122t Mood disorders, and CADASIL, 187 Mortality rate cerebral aneurysm, 164-165 ICH, 75–77, 152–153 Motor deficits subarachnoid hemorrhage and, 99 Moyamoya classification based on angiography, 217t Moyamoya disease, 214 diagnosis, 216-217 medical management, 217 moyamoya classification, 217 pathophysiology, 215-216 prognosis, 215 revascularization surgery, 218 surgical treatments, 218-219 Moyamoya vascular anomalies, 214 MTHFR gene. See Methylenetretrahydrofolate reductase (MTHFR) gene Multipolar neuron, 3f Musculoskeletal system evaluation of SAH patients, 129-130 of stroke patients, 62

Mycotic aneurysm, and ICH, 81 Myelin, 7 NADH. See Nicotinamide adenine dinucleotide (NADH) Neoplasm, and ICH, 80 Nervous system central cells of, 2-7 peripheral neurons of, 4-5 thrombosis, 244 Neuroimaging, 140-142. See also Computed tomography (CT); Magnetic resonance imaging (MRI); Positron emission tomography (PET) for diagnosis of CAA, 140, 142 Neurological deficit, ICH and, 82-84 Neurologic examination, SAH, 110-124 aneurysm rebleeding, 114 cerebral vasospasm, 114-124, 119–122t delayed cerebral ischemia, 114-124 intracranial pressure, monitoring and management of, 111-114, 113t Neurons, 2–5 axon of, 2, 3f cell body, 2, 3f within cerebellum, 12 dendrites of, 2, 3f in frontal lobe, 9 neurotransmitters and, 3-4, 4f and NOS production, 22 of peripheral nervous system, 4 - 5structure of, 3f

Neuroplasticity, 64
Neuroscience nursing
overview of, 2
Neurotransmitters, 3–4, 4f
Nicardipine (Cardene), 120t, 122t
Nicotinamide adenine
dinucleotide (NADH), 20
NIHSS scoring system, 51–52t
NIH Stroke Scale (NIHSS), 86
Nimodipine, 115, 121t
NINDS trial, 57
Nitric oxide
and cerebral blood flow, 22
Nitric oxide synthase (NOS), 22
NMDA glutamate receptor
blocker, 231
Nodes of Ranvier, 7
Non-steroidal anti-inflammatory
drugs (NSAIDS)
for migraine, 205, 206
Normal saline solution (NSS), 59
Notch 3 gene, and CADASIL,
186
Nurses, ED, 50, 52
Obstructive sleep apnea, 228
Occipital lobe, 10f, 11
Olanzapine, 231
Older adults
CAA in, 137
Oligodendrocytes, 5, 7
diagram of, 9f
Outpatient rehabilitation, 130
Oxaloacetate, 21
Oxygen
administration of, 102
and cerebral blood flow, 21
Papavarine, 118, 119t, 122t

Papavarine, 118, 119t, 122t Papilledema, subarachnoid hemorrhage and, 99 Parietal lobe, 10, 10f

Index

PCC. See Prothrombin complex concentrate (PCC) PE. See Pulmonary emboli (PE) Penumbra device, 55 Peripheral nervous system neurons of, 4-5 Perivascular infiltration, 146 Phospholipids, 206 Physical activity, for stroke prevention, 50 Pituitary glands, 11 Polygenetic disorder, 261 Polymyalgia Rhumatica (PMR), 263t Pons, 13 Pontine arteries, 18 Positron emission tomography (PET), 142. See also Neuroimaging Post-central gyrus, 10 Posterior cerebral arteries, 18 Posterior communicating arteries, 18-19 Posterior pituitary gland, 11 Precentral gyrus, 9 Prednisone, 248t Prefrontal lobe/cortex, 9 Prehypertension, 48 Primary motor cortex/strip, 9 Primary sensory cortex, 10 Prolonged inflammation, 215 Prophylaxis, primary, 249 Propranolol and CCM, 182 and migraine, 208 Prostaglandins, 206 Prothrombin complex concentrate (PCC), 87 Psychological counseling for CADASIL diagnosis, 190 Pulmonary emboli (PE), 62 Pyruvate, 20-21

Radiotherapy for AVM management, 110, 178 Rebleeding, aneurysm monitoring for, 114 Receptors binding of, 5 Rehabilitation ICH, 89, 153 outpatient, 130 stroke, 64-65 Relaxation therapy, and migraine, 205 Repolarization phase, cardiac action potential, 3 Respiratory diseases and choking, 38 Respiratory distress syndrome and SAH, 125 Respiratory rate monitoring in ischemic stroke patients, 58 in SAH, 124–125 Retinal hemorrhage subarachnoid hemorrhage and, 99 Return of spontaneous circulation (ROSC), 36 Risperidone, 231 Robot-assisted therapy, 65 Schwann cells, 7

SCN1A gene, 197 SDH. See Subdural hemorrhage (SDH) Second-hit theory, 238 Secretase inhibitors, 155 Seizures, 174 and CCM, 179 management of, 181 subarachnoid hemorrhage and, 99 Sentinel bleed, 167 Serotonin antagonists for prevention of migraine, 200, 201*t* Single-photon emission computed tomography (SPECT), 217 Skin biopsy testing for CADASIL diagnosis, 188 Small artery occlusion (SAO), 28, 41-42 as cause of ischemic stroke, 40 Sodium-potassium pumps, 3 Soma, neuron, 2, 3f Somatosensory cortex, 10 SPARCL trial, 48 Spontaneous intracerebral hemorrhage. See Hypertensive ICH Spot sign, 82 Stage 1 hypertension, 48 Stage 2 hypertension, 48 Statins, and CCM, 182 Stereotactic radiosurgery, for CCM, 182-183 Steroids, and migraine, 208 STICH. See Supratentorial ICH (STICH) Strangulation, and stroke, 37-38 Stress ulcers, 128 Stroke, 35-67 CADASIL and, 190 carbon monoxide and, 39 cardiac arrest and, 36-37 causes of, 39-40, 39t choking and, 38 defined, 36 drowning and, 37 embolic, 42-43 prevention, 43-45 head injury and, 38-39

_

	Index
hemodynamic stability	Subarachnoid hemorrhage (SAH),
BP management, 58–61	74, 95–131. See also
neurologic management,	Aneurysm; Arteriovenous
56–58	malformation (AVM)
respiratory management, 58	acute care, 101–131
hypercoagulability and, 43	and blood pressure
patients	management, 125–127
acute care for, 56	and cerebral vasospasm, 96–97
evaluation of, 61–62	diagnosis of, 99–101
long-term care of, 63–65	long-term care, 130–131
nursing care for, 55–56	lumbar puncture for, 100
post-acute-stroke placement and	neurologic examination,
care, 65–67	110–124
prevalence/incidence, 36	aneurysm rebleeding, 114
prevention of, 43–47	cerebral vasospasm, 114–124,
rehabilitation approach, 64–65	119-122t
risk factors	delayed cerebral ischemia,
carotid stenosis, 47	114–124
cigarette smoking, 49	intracranial pressure,
diabetes, 49	monitoring and
hyperlipidemia, 48–49	management of, 111–114,
hypertension, 48	113 <i>t</i>
lifestyle, 49–50	overview, 96
strangulation and, 37–38	pathophysiology, 96–97
thrombophilia and, 43	prevention of, 97–98
thrombotic, 40–42	symptoms, 99
prevention of, 45-47	Subarachnoid screws/bolts,
TOAST criteria, 39–40, 39t	112
treatment of	Subdural hemorrhage (SDH),
glucose management during,	81
60	Subdural screw/bolt, 112
interventional, 54-55	Sulcus, 8
temperature management	Supratentorial ICH (STICH)
during, 60–61	hypertensive ICH vs., 77–78
thrombolytics and, 50–53,	Surgery
51–52 <i>t</i> , 53 <i>t</i> , 54 <i>t</i>	aneurysm, 102–103, 173–174
Strokes of undetermined etiology	AVM resection, 107-108, 177
(SUE)	of CAA-induced ICH, 149
as cause of ischemic stroke,	CCM, 181–182
40	Susceptibility-weighted imaging
Subacute bacterial endocarditis	(SWI), 180
(SBE), 81	Suzuki grading system, 217t

Swallowing assessment in SAH patients, 127-128 in stroke patients, 61 Sylvian fissure, 10 Synapse signal transmission at, 4, 4f Syncope as symptom of subarachnoid hemorrhage, 99 Systemic lupus erythematosus (SLE), 235 Systolic blood pressure, 126 T-cell derived cytokines, 262 TEE. See Transesophageal echocardiogram (TEE) Temperature management during stroke treatment, 60-61 Temporal artery biopsy (TAB), 268-269 Temporal lobe, 10f, 11 Tentorium cerebelli, 12 Thalamus, 11 Thrombocytopenia, 87 defined, 245 Thrombolytics for stroke treatment, 50-53, 51-52t, 53t, 54t Thrombocytosis, 268 Thromboembolic events, 251 Thrombophilia causes of, 43 and stroke, 43 Thrombotic stroke, 40-42 prevention of, 45-47 Thromboxane, 206 Thunderclap headache as symptom of subarachnoid hemorrhage, 99 TIA. See Transient ischemic attacks (TIA)

Ticlodipine, 47 Tissue necrosis factor (TNF) inhibitor, 271 TNF alpha inhibitor, 271 TOAST criteria, 39-40, 39t Transcranial Doppler (TCD), 31 Transesophageal echocardiogram (TEE), 32 Transient ischemic attacks (TIA), 25-32 clinical characterization of, 26 defined, 26 diagnosis, 29-32 embolic, 28 epidemiology, 26-27 pathophysiology, 27 physiologic causes of, 27-30 prevention of, 29 Transmural (non)-granulomatous angitis, 146 Transthoracic echocardiogram (TTE), 32 Traumatic ICH, 81 Tricyclic antidepressants for prevention of migraine, 202, 203–204t Triple H therapy (HHH) goals, 117 for treatment of cerebral vasospasm and DCI, 117-118 Triptans, 207-208 Tunica externa, 15, 16f Tunica media, 15, 16f T1 weighted images, 216 Unipolar neuron, 3f

Vascular malformations, 163-183 arteriovenous malformation, 79, 79f, 174-178

_

	Index
hlaad flamma MDI and	
blood flow patterns, MRI and, 98	surgical procedure for, 173–174
defined, 174	cerebral cavernous
diagnosis of, 175–176	malformation, 179–182
embolization of, 177–178	defined, 179
endovascular treatment of,	diagnosis of, 180–181
109–110	epidemiology, 179
epidemiology, 174–175	medications for, 181
and intraparenchymal	pathophysiology, 179–180
hemorrhage, 106	stereotactic radiosurgery for,
location of, CTA and, 100–101	182–183
management of, 175	surgical intervention for,
monitoring of, 175–176	181–182
pathophysiology, 175	Vasoactive drugs, for blood
radiotherapy and, 110	pressure management,
resection, 107–108	126–127
rupture, risk of, aging and,	Vasodilation, 21, 22
96	Venereal Disease Research
securement, 105–106	Laboratory (VDRL), 234
surgical treatments, 177	Venous sinus thrombosis, ICH
cerebral aneurysm	and, 80
in Circle of Willis, 165, 166f	Verapamil, 120t
coil embolization of, 172–173	Vertebral arteries, 18
defined, 163	Vision
epidemiology, 163–164, 163f	subarachnoid hemorrhage and,
identification of, MRI and, 97–98	99
location of, 171	Warfarin, 45, 248t
monitoring of, 168–171	and coagulopathy, 78
pathophysiology, 165, 167	and risk of ICH, 74
post-operative care, 174	usage in CAA patients, 154
rupture, prevention of, 168 size of, 165, 169–171	Warfarinization, 87
and subarachnoid	Xenon-enhanced computed
hemorrhage, 96–97	tomography (XeCT), 217
-	

