

Index

Note: Page numbers of article titles are in **boldface** type.

A

- Acetaminophen, for shivering, 462
- Acid-base imbalance, in hypothermia, 462
- Acute respiratory distress syndrome and acute lung injury, mechanical ventilation and, 411
- Airway control, for traumatic brain injury, 311–312
- American Academy of Neurology guidelines, for brain death, 470–473
- Aminocaproic acid, for subarachnoid hemorrhage, 326–327
- Amyloid angiopathy, intracerebral hemorrhage in, 350
- Ancillary testing, for brain death, 476–477
- Anemia, in subarachnoid hemorrhage, 331
- Aneurysm, subarachnoid hemorrhage in. *See* Subarachnoid hemorrhage.
- Antibiotics
 - for subarachnoid hemorrhage, 330–331
 - seizures induced by, 398–399
- Anticoagulants
 - for spinal cord injury, 344–345
 - intracerebral hemorrhage due to, 353–355
- Anticonvulsants/antiepileptics, for seizures, 323, 326, 395–402
- Antifibrinolytic therapy, for subarachnoid hemorrhage, 326–327
- Antihypertensive Treatment of Acute Cerebral Hemorrhage, 351
- Apnea test, for brain death, 473, 475–476
- Apneustic breathing, 409
- Ataxic breathing, 409
- Autonomic dysreflexia, in spinal cord injury, 341–342
- Autonomic nervous system dysfunction, in traumatic brain injury, 317
- Autoregulation, cerebral, transcranial Doppler ultrasonography for, 448

B

- Baclofen, seizures induced by, 399
- Balloon catheter, for vasospasm, in subarachnoid hemorrhage, 328
- Bedside Shivering Assessment Scale, 462
- Bleeding. *See also* Hemorrhage.
 - in traumatic brain injury, 310, 313
- Blood gas values, in hypothermia, 462
- BOOST (Brain Tissue Oxygen Monitoring in Traumatic Brain Injury) project, 316
- Bradycardia
 - in hypothermia, 463

in spinal cord injury, 342

Brain

- hemorrhage of, intracerebral, **349–359**
 - oxygenation of. *See* Oxygen monitoring, brain.
 - pressure in. *See* Intracranial pressure.
 - traumatic injury of. *See* Traumatic brain injury.
- ## Brain death, **469–482**
- ancillary testing for, 476
 - checklist for, 472
 - clinical diagnosis of, 470–476
 - common pitfalls regarding, 475–476
 - ethical concerns in, 478–479
 - family discussions about, 479
 - guidelines for, 470–475
 - historical context of, 469–470
 - mimics of, 475
 - organ donation and, 476–479
 - religious concerns in, 478–479
 - transcranial Doppler ultrasonography for, 451–452
- ## Brain Tissue Oxygen Monitoring in Traumatic Brain Injury (BOOST) project, 316
- ## Brain Trauma Foundation guidelines, 309, 362, 377–378
- ## Breathing
- abnormal patterns of, 407–409
 - problems with, in spinal cord injury, 343
- ## Buspirone, for shivering, 462

C

- Calcium-channel blockers, for subarachnoid hemorrhage, 327–328
- Canada, brain death criteria of, 474–475
- CARAT (Cerebral Aneurysm Rerupture After Treatment) study, 326
- Carbamazepine, for seizures, 400
- Carbon dioxide monitoring, in traumatic brain injury, 312
- Cardiac arrest
 - hypothermia for, 458–459
 - in spinal cord injury, 342
- Cardiac arrhythmias
 - in hypothermia, 463
 - in spinal cord injury, 341–342
- Cardiac disorders, in hypothermia, 463
- Cardiac management, of subarachnoid hemorrhage, 324
- Cardiomyopathy, in subarachnoid hemorrhagic, 329
- Carotid endarterectomy and stenting, transcranial Doppler ultrasonography for, 451

- Catecholamine abnormalities, after brain death, 478
- Cerebral Aneurysm Rerupture After Treatment (CARAT) study, 326
- Cerebral angiography, for brain death evaluation, 476–477
- Cerebral autoregulation, transcranial Doppler ultrasonography for, 448
- Cerebral blood flow velocity measurement, transcranial Doppler ultrasonography for, 442–452
- Cerebral ischemia, in subarachnoid hemorrhage, 327–329
- Cerebral metabolic rate of oxygen, reduction of, 367–368
- Cerebral microdialysis. *See* Microdialysis monitoring.
- Cerebral perfusion pressure
- in increased ICP, 379
 - in traumatic brain injury, 313–314
- Cerebral venous sinus thrombosis, seizures after, 397
- Cerebrospinal fluid, drainage of, for ICP reduction, 379–381
- Cervical collar, for traumatic brain injury, 311
- Cheyne-Stokes respiration, 408–409
- Clark electrode, for oxygen monitoring, 428–429
- Clazosentan to Overcome Neurologic Ischemia and Infarction Occurring after Subarachnoid Hemorrhage (CONSCIOUS) trials, 328–329
- CLEAR-IVH (Clot Lysing: Evaluation Accelerated Resolution of Intraventricular Hemorrhage) trial, 380
- Cluster breathing, 409
- Coagulopathy, in hypothermia, 464
- Coma. *See also* Brain death.
- pharmacologic
 - for ICP reduction, 367–368
 - for traumatic brain injury, 314–315
- Computed tomography
- for increased ICP, 377
 - for pulmonary embolism, 345
 - for traumatic brain injury, 311, 313
- CONSCIOUS (Clazosentan to Overcome Neurologic Ischemia and Infarction Occurring after Subarachnoid Hemorrhage) trials, 328–329
- Cooperative Study of Brain Injury Depolarizations (COSBID) study group, 459
- Corticosteroids
- for hyponatremia, 330
 - for seizures, 401
 - for spinal cord injury, 340
- COSBID (Cooperative Study of Brain Injury Depolarizations) study group, 459
- Critical care unit. *See* Neurocritical care unit.
- Cushing triad, in increased ICP, 376–377
- D**
- Dabigatran, intracerebral hemorrhage due to, 353–355
- DECIMAL trial, for ICP reduction, 382–387
- Decompression
- for intracerebral hemorrhage, 353
 - for traumatic brain injury, 314–315
- Decompressive craniectomy, for ICP reduction, 382–387
- Decompressive Craniectomy (DECRA), 383
- for ICP reduction, 368
 - for traumatic brain injury, 315
- Decompressive laparotomy, for ICP reduction, 368
- Decompressive Surgery for the Treatment of Malignant Infarction of the Middle Cerebral Artery (DESTINY) trial, for ICP reduction, 382–387
- DECRA (Decompressive Craniectomy), 383
- for ICP reduction, 368
 - for traumatic brain injury, 315
- Deferoximine, for intracerebral hemorrhage, 352
- Delayed cerebral ischemia, in subarachnoid hemorrhage, 327–329
- DESTINY (Decompressive Surgery for the Treatment of Malignant Infarction of the Middle Cerebral Artery) trial, for ICP reduction, 382–387
- Dexmedetomidine, for shivering, 462
- Dialysis device. *See* Microdialysis monitoring.
- Diaphragm, dysfunction of, in spinal cord injury, 343
- Diazepam, for seizures, 400
- Digital subtraction cerebral angiography, for brain death evaluation, 476–477
- Dopamine, for spinal cord injury, 341–342
- Doppler ultrasonography. *See* Transcranial Doppler ultrasonography.
- Drainage, for intracerebral hemorrhage, 353
- Drugs, seizures induced by, 398–399
- Dysautonomia, in traumatic brain injury, 317
- E**
- Edema
- perihematomal, in intracerebral hemorrhage, 351–352
 - pulmonary, 409
- Electroencephalography
- for brain death evaluation, 476–477
 - for traumatic brain injury, 313
- Electrolyte abnormalities
- in hypothermia, 462
 - seizures in, 399
- Embolism, pulmonary, in spinal cord injury, 344–345
- Endarterectomy, carotid, transcranial Doppler ultrasonography for, 451
- Endocrine management, of subarachnoid hemorrhage, 325, 331
- Endothelin receptor antagonists, for subarachnoid hemorrhage, 328–329
- Endotracheal intubation
- for spinal cord injury, 343–344
 - for traumatic brain injury, 311–312

Endovascular treatment, for subarachnoid hemorrhage, 328, 331–332

Epilepsy
in subarachnoid hemorrhage, 323, 326
microdialysis monitoring in, 424

ESCAPE (Evaluation Study of Congestive Heart Failure and Pulmonary Artery Catheterization Effectiveness) trial, 365

Ethical concerns, in brain death evaluation, 476–477

Eurotherm3235 Trial, 459

Evaluation Study of Congestive Heart Failure and Pulmonary Artery Catheterization Effectiveness (ESCAPE) trial, 365

External ventricular drainage
for hydrocephalus, 322–323
for increased ICP, 364–365

F

FAST trial, in intracerebral hemorrhage, 352

Fever
in subarachnoid hemorrhage, 330–331
in traumatic brain injury, 316

Fibroblast growth factor, as biomarker, in microdialysis monitoring, 423

Fludrocortisone
for hyponatremia, in subarachnoid hemorrhage, 330
for spinal cord injury, 342

Fluid therapy
for spinal cord injury, 341–342
for subarachnoid hemorrhage, 329–330

Fluorescence sequencing technique, for oxygen monitoring, 428–429

Fosphenytoin, for seizures, 400

Full Outline of Unresponsiveness Score, for traumatic brain injury, 311

G

Gabapentin, for seizures, 399

Germany, brain death criteria of, 474

Glasgow Coma Score
in increased ICP, 377
in traumatic brain injury, 311

Glucose
as biomarker, in microdialysis monitoring, 419–420
control of, for subarachnoid hemorrhage, 331

Glutamate, as biomarker, in microdialysis monitoring, 421–422

Glyceraldehyde-3-phosphate dehydrogenase, as biomarker, in microdialysis monitoring, 423

Glycerol, as biomarker, in microdialysis monitoring, 420–421

GM-1 ganglioside, for spinal cord injury, 341

H

HAMLET (Hemicraniectomy after Middle Cerebral Artery Infarction with Life-threatening Edema) trial, for ICP reduction, 382–387

Harvard Criteria, for brain death, 470–471

Headache, in increased ICP, 376

HeADDFIRST trial, 383

Heart failure, in subarachnoid hemorrhagic, 329

Hematologic disorders, in hypothermia, 464

Hematologic management, of subarachnoid hemorrhage, 325, 331

Hematoma
in intracerebral hemorrhage, 351–352
removal of, for ICP reduction, 381–387

Hemicraniectomy after Middle Cerebral Artery Infarction with Life-threatening Edema (HAMLET) trial, for ICP reduction, 382–387

HeMMI trial, 383

Hemodilution, in subarachnoid hemorrhage, 328

Hemodynamic instability, in spinal cord injury, 341

Hemorrhage
intracerebral, **349–359**
intraventricular, 353
subarachnoid. *See* Subarachnoid hemorrhage.

Heparin
for spinal cord injury, 344–345
for subarachnoid hemorrhage, 331
intracerebral hemorrhage due to, 353–355

Herniation, 363
after decompressive craniectomy, 387
in increased ICP, 377
in traumatic brain injury, 313

High-frequency ventilation, intracranial pressure and, 412

Hydrocephalus, in subarachnoid hemorrhage, 322–323

Hydrocortisone, for hyponatremia, in subarachnoid hemorrhage, 330

Hygroma, after decompressive craniectomy, 387

Hypercarbia, in traumatic brain injury, 312

Hyperglycemia
in subarachnoid hemorrhage, 331
in traumatic brain injury, 316–317
seizures in, 399

Hyperosmolar therapy, for ICP reduction, 366

Hyperoxia, for optimum brain oxygenation, 434

Hypertension
in subarachnoid hemorrhage, 328
in traumatic brain injury, 313
intracerebral hemorrhage in, 350

Hypertonic saline therapy
for ICP reduction, 366, 369, 379
for traumatic brain injury, 314

Hyperventilation
for ICP reduction, 366
in neurologic injury, 408

- Hypervolemia
 - in subarachnoid hemorrhage, 328
 - prophylactic, for subarachnoid hemorrhage, 330
 - Hypocapnia, permissive, 410–411
 - Hypoglycemia, seizures in, 399
 - Hyponatremia
 - in subarachnoid hemorrhage, 330
 - seizures in, 399
 - Hypotension
 - in spinal cord injury, 341–342
 - in traumatic brain injury, 311–312
 - Hypothermia, therapeutic, **457–467**
 - complications of, 461–464
 - for ICP reduction, 367–368
 - for optimum brain oxygenation, 434
 - for seizures, 401
 - for spinal cord injury, 341
 - for traumatic brain injury, 316
 - history of, 457
 - indications for, 458–461
 - intraoperative, 460
 - mechanism of action of, 457–458
 - phases of, 461
 - Hypoxia, in traumatic brain injury, 311, 314
- I**
- ICP. *See* Intracranial pressure.
 - Immune dysfunction, in hypothermia, 463–464
 - Infections, in subarachnoid hemorrhage, 325, 330–331
 - Inferior vena cava filter, for traumatic brain injury, 315
 - Inflammation
 - in subarachnoid hemorrhage, 328–329
 - in traumatic brain injury, 310
 - Injury
 - spinal cord, **339–347**
 - traumatic brain. *See* Traumatic brain injury.
 - Insulin resistance, in hypothermia, 462–463
 - Intensive Blood Pressure Reduction in Acute Cerebral Hemorrhage Trial, 351
 - Intensive care unit. *See* Neurocritical care unit.
 - International Cooperative Study on the Timing of Aneurysm Surgery, 326
 - International Multidisciplinary Consensus Conference on the Critical Care Management of Subarachnoid Hemorrhage, 326
 - International Subarachnoid Aneurysm Trial (ISAT), 323
 - Intracerebral hemorrhage, **349–359**
 - anticoagulant-induced, 353–355
 - causes of, 349–350
 - epidemiology of, 349–350
 - guidelines for, 350–351
 - impact of, 349–350
 - intraventricular hemorrhage with, 355
 - pathophysiology of, 351–352
 - prognosis for, 349–350
 - seizures after, 395–396
 - surgical treatment of, 352–353
 - Intracranial dynamics, in traumatic brain injury, 310–311
 - Intracranial pressure, **361–373, 375–391**
 - increased
 - causes of, 376
 - clinical presentation of, 376–377
 - diagnosis of, 377
 - evaluation of, 377
 - in traumatic brain injury, 313–315
 - mechanisms of, 362–363
 - protection against, 363–364
 - reduction of, 312, 365–369, 378–387, 434
 - transcranial Doppler ultrasonography for, 451–452
 - mechanical ventilation effects on, 410–412
 - monitoring of, 361–362, 377–378
 - indications for, 364
 - invasive, 364–365
 - noninvasive, 365
 - normal, 376
 - Intraoperative Hypothermia for Aneurysm Surgery Trial, 460
 - Intraparenchymal microtransducer sensors, for ICP monitoring, 377–378
 - Intravascular Cooling in the Treatment of Stroke—Longer TPA Window trial, 460
 - Intraventricular catheters
 - for ICP monitoring, 377–378
 - for ICP reduction, 379–381
 - Intraventricular hemorrhage, intracerebral hemorrhage with, 353
 - ISAT (International Subarachnoid Aneurysm Trial), 323
 - Ischemia, cerebral, in subarachnoid hemorrhage, 327–329
 - Ischemic stroke, seizures after, 395
- J**
- Jugular bulb oxygen monitoring, for traumatic brain injury, 316
- K**
- Ketamine
 - for ICP reduction, 368
 - for seizures, 401
 - Ketogenic diet, for seizures, 401
 - Kidney disorders
 - in hypothermia, 462–463
 - in subarachnoid hemorrhage, 325, 329
- L**
- Lacosamide, for seizures, 401

Lactate, as biomarker, in microdialysis monitoring, 419–420
 Lamotrigine, for seizures, 399
 Lazarus signs, 475
 Levetiracetam, for seizures, 326, 400–401
 Licox probe, for oxygen monitoring, 428–429
 Lindegaard index, 444–445
 Lorazepam, for seizures, 400
 Lumbar drains, for hydrocephalus, 322–323

M

Magnesium
 for seizures, 401
 for shivering, 462
 Magnesium for Aneurysmal Subarachnoid Hemorrhage (MASH) trial, 328
 Magnesium sulfate, for subarachnoid hemorrhage, 327–328
 Magnetic resonance imaging
 for increased ICP, 377
 for traumatic brain injury, 313
 Mannitol, for ICP reduction, 366, 369, 379
 MASH (Magnesium for Aneurysmal Subarachnoid Hemorrhage) trial, 328
 Mechanical ventilation, **407–416**
 brain oxygenation and, 410
 for optimum brain oxygenation, 434
 for spinal cord injury, 343–344
 for traumatic brain injury, 312
 indications for, 407–409
 intracranial pressure effects of
 acute respiratory distress syndrome and, 411
 high-frequency ventilation and, 412
 hyperventilation, 410–411
 permissive hypercapnea and, 411
 positive end-expiratory pressure and, 411–412
 pulmonary pathophysiology and, 409–410
 weaning from, 412–414
 Metabolic abnormalities, seizures in, 399
 Methylprednisolone, for spinal cord injury, 340–341
 Microdialysis monitoring, **417–426**
 biomarkers in, 419–421, 423
 clinical application of, 421
 devices for, 418–419
 history of, 417–418
 in increased ICP, 378
 in subarachnoid hemorrhage, 422
 in traumatic brain injury, 315, 421–422
 limitations of, 423–424
 reimbursement for, 419
 Microembolism screening, transcranial Doppler ultrasonography for, 450–451
 Microhemorrhages, intracerebral, 350
 Microtransducer sensors, intraparenchymal, for ICP monitoring, 377–378
 Midazolam, for seizures, 400

Midodrine, for spinal cord injury, 342
 Minimally Invasive Surgery Plus T-PA for Intracerebral Hemorrhage Evacuation trial, 353
 Minnesota Criteria, for brain death, 471
 Monro-Kellie doctrine, 310, 362–363, 376
 Multimodal neuromonitoring, in increased ICP, 378
 Myocardium, stunned
 abnormal breathing in, 409–410
 in subarachnoid hemorrhage, 329

N

NABIS (National Acute Brain Injury Study), 459
 NASCIS (National Acute Spinal Cord Injury Study), 340–341
 Neurocritical care unit
 brain death assessment in, **469–482**
 brain oxygen monitoring in, 316, 410, **427–439**
 hypothermia in. See Hypothermia.
 intracerebral hemorrhage in, **349–359**
 intracerebral pressure management in, **361–373**
 intracranial pressure management in, **375–391**
 mechanical ventilation in. See Mechanical ventilation.
 microdialysis monitoring in, 315, 378, **417–426**
 seizures in, **393–406**
 spinal cord injury in, **339–347**
 subarachnoid hemorrhage in. See Subarachnoid hemorrhage.
 transcranial Doppler ultrasound in, **441–456**
 traumatic brain injury in. See Traumatic brain injury.
 Neurogenic pulmonary edema, 409
 Neurogenic shock, in spinal cord injury, 341–342
 Neurologic injury, in spinal cord injury, 340–341
 Neurologic management, of subarachnoid hemorrhage, 322–324, 326–329
 Nimodipine, for subarachnoid hemorrhage, 327–328
 Nitric oxide metabolites, as biomarkers, in microdialysis monitoring, 423
 Norepinephrine
 for spinal cord injury, 341–342
 for traumatic brain injury, 315
 Normeperidine, seizures induced by, 399
 Nuclear blood flow scanning, for brain death evaluation, 476–477
 Nutrition, for traumatic brain injury, 315
 NXY-059 free radical scavenger, for intracerebral hemorrhage, 352

O

Opioids, seizures induced by, 399
 Optic nerve sheath diameter measurement, in ICP monitoring, 365
 Organ donation, after brain death, 476–479
 Orthostatic hypotension, in spinal cord injury, 342

- Oxcarbazepine, for seizures, 401
- Oxygen monitoring, brain, **427–439**
 care based on, 433–434
 definition of, 428
 devices for, 427–429
 insertion of, 429–430
 oxygen concentration values and, 430
 for traumatic brain injury, 316
 global measurement in, 430
 importance of, 428
 indices for, 432–433
 intraoperative, 432
 outcome and, 433
 rationale for, 431–432
 regional measurement in, 430
 uses of, 430–432
- Oxygenation, brain, mechanical ventilation and, 410
- P**
- Papilledema, in increased ICP, 376–377
- Paraplegia. *See* Spinal cord injury.
- Parenchymal brain oxygen monitoring. *see* Oxygen monitoring.
- Patent foramen ovale screening, transcranial Doppler ultrasonography for, 449–450
- Pentobarbital, for ICP reduction, 367–368
- Phenobarbital, for seizures, 400
- Phenylephrine, for traumatic brain injury, 315
- Phenytoin, for seizures, 323, 326, 400
- Phrenic nerve, dysfunction of, in spinal cord injury, 343
- PiCCO system, for subarachnoid hemorrhage, 328, 330
- Pituitary dysfunction, after brain death, 478
- Plasmapheresis, for seizures, 401
- Pneumonia
 in hypothermia, 463–464
 in spinal cord injury, 344
 in subarachnoid hemorrhagic, 329
- Positioning
 for ICP reduction, 368–369
 for increased ICP, 379
 for optimum brain oxygenation, 434
 for traumatic brain injury, 316
- Positive end-expiratory pressure
 for acute respiratory distress syndrome, 411
 for pulmonary edema, 409
 intracranial pressure and, 411–412
 weaning from, 412–414
- Pregabalin, for seizures, 401–402
- President's Commission, Uniform Determination of Death Act, 470–471
- Progesterone for Traumatic Brain Injury, Experimental Clinical Trial (ProTECT), 368
- Propofol
 for ICP reduction, 367–368
 for seizures, 400
 for traumatic brain injury, 314–315
- ProTECT (Progesterone for Traumatic Brain Injury, Experimental Clinical Trial), 368
- Pulmonary edema, 409
- Pulmonary embolism, in spinal cord injury, 344–345
- Pulmonary management, of subarachnoid hemorrhage, 324, 329
- Pulsatility index
 in ICP monitoring, 365
 in transcranial Doppler ultrasonography, 442
- Pyridoxine, for seizures, 401
- Pyruvate, as biomarker, in microdialysis monitoring, 419–420
- Q**
- Quadriplegia. *See* Spinal cord injury.
- R**
- rain. *See also subjects starting with* Cerebral.
- Randomized Evaluation of Surgery with Craniectomy for Uncontrollable Increase of Intra-Cranial Pressure (RESCUEicp), 368, 385
- Reactivity indices, for brain oxygenation, 432–433
- Rebleeding, of subarachnoid hemorrhage, 326–327
- Reflexes, brain death and, 475
- Religious concerns, in brain death evaluation, 476–477
- Reperfusion-hyperperfusion syndrome, seizures and, 397
- RESCUEicp (Randomized Evaluation of Surgery with Craniectomy for Uncontrollable Increase of Intra-Cranial Pressure), 368, 385
- Resistance index, in transcranial Doppler ultrasonography, 442
- Respiratory disorders, in spinal cord injury, 343–344
- Retigabine, for seizures, 403
- Rewarming, after hypothermia, 459
- Rivaroxaban, intracerebral hemorrhage due to, 353–355
- S**
- Scintigraphy, for brain death evaluation, 476–477
- Seizures, **393–406**
 after stroke, 395–397
 brain tumors and, 398
 causes of, 394
 drug-induced, 398–399
 in electrolyte abnormalities, 399
 in subarachnoid hemorrhage, 323, 326
 in traumatic brain injury, 315, 397–398
 incidence of, 393
 pathophysiology of, 394
 reperfusion-hyperperfusion syndrome and, 397

- treatment of, 399–402
 - Shivering, in hypothermia, 461–462
 - Shunt, ventricular, for hydrocephalus, 322–323
 - Sinus thrombosis, seizures after, 397
 - Sodium balance, management of, for subarachnoid hemorrhage, 329–330
 - Space-occupying lesions, removal of, for ICP reduction, 381–387
 - Spinal cord injury, **339–347**
 - incidence of, 339–340
 - management of
 - cardiovascular complications, 341–342
 - hypothermia for, 461
 - neurologic injury, 340–341
 - respiratory disorders, 343–344
 - thromboembolic complications, 344–345
 - pathophysiology of, 340–341
 - Statins, for subarachnoid hemorrhage, 328–329
 - Status epilepticus, after stroke, 395
 - Stents, carotid, transcranial Doppler ultrasonography for, 451
 - STICH (Surgical Trial in intracerebral Hemorrhage) trial, 353, 381–382
 - Stockings, antiembolic
 - for spinal cord injury, 344–345
 - for subarachnoid hemorrhage, 331
 - for traumatic brain injury, 315
 - Stroke
 - hypothermia for, 460
 - in intracerebral hemorrhage, 349–359
 - increased ICP in, 376
 - seizures after, 395–397
 - transcranial Doppler ultrasonography for, 448–449
 - Study of the Neuroprotective Activity of Progesterone in Severe Traumatic Brain Injury (SyNAPSe) trial, 368
 - Subarachnoid hemorrhage
 - management of, **321–337**
 - cardiac, 324
 - endocrine, 325, 331
 - endovascular versus surgical, 331–332
 - guidelines for, 321–325
 - hematologic, 325, 331
 - hypothermia for, 459–460
 - ICP monitoring in, 377–378
 - infection control in, 325, 330–331
 - microdialysis monitoring in, 422
 - neurologic, 322–324, 326–329
 - oxygen monitoring in, 427, 432–433
 - pulmonary, 324, 329
 - renal, 325, 329
 - team approach for, 322
 - seizures after, 396–397
 - vasospasm after, transcranial Doppler ultrasonography for, 443–448
 - Surgical treatment, of subarachnoid hemorrhage, 331–332
 - Surgical Trial in intracerebral Hemorrhage (STICH) trial, 353, 381–382
 - Sympathetic storms, in traumatic brain injury, 317
 - SyNAPSe (Study of the Neuroprotective Activity of Progesterone in Severe Traumatic Brain Injury) trial, 368
- T**
- Tachypnea, in neurologic injury, 408
 - Tako-tsubo cardiomyopathy, in subarachnoid hemorrhagic, 329
 - Thiopental, for seizures, 400
 - Thrombin, in intracerebral hemorrhage, 352
 - Thrombocytopenia, in hypothermia, 464
 - Thromboembolism
 - in spinal cord injury, 344–345
 - in subarachnoid hemorrhage, 331
 - prophylaxis for, in traumatic brain injury, 315
 - seizures and, 397
 - transcranial Doppler ultrasonography for, 450–451
 - Tirilzad mesylate, for spinal cord injury, 340–341
 - Topiramate, for seizures, 401
 - Tracheostomy, for spinal cord injury, 344
 - Tranexamic acid, for subarachnoid hemorrhage, 326–327
 - Transcranial Doppler ultrasonography, **441–456**
 - basic concepts of, 442–443
 - for brain death evaluation, 451–452, 476–477
 - for carotid endarterectomy planning, 451
 - for cerebral autoregulation, 448
 - for emboli, 450–451
 - for ICP monitoring, 365
 - for intracranial hypertension, 451–452
 - for patent foramen ovale screening, 449–450
 - for stroke, 448–449
 - for subarachnoid hemorrhage, 327
 - for vasospasm, 443–448
 - history of, 441
 - variations of, 443
 - Traumatic brain injury, **309–319**
 - dysautonomia in, 317
 - emergency management of, 311–313
 - fever in, 316
 - hyperglycemia in, 316–317
 - hypothermia for, 316, 459
 - imaging for, 313
 - incidence of, 309
 - intracranial dynamics of, 310–311
 - intracranial hypertension after, 313–315
 - intracranial pressure management in, **361–373**
 - mechanical ventilation for, **407–416**
 - microdialysis monitoring in, 315, 421–422
 - nutrition for, 315
 - oxygen monitoring in, 316, 427, 431–433
 - pathophysiology of, 309–310, 422
 - positioning in, 316

Traumatic (*continued*)

- seizures in, 315
- steroid use in, 315
- triage for, 311
- vasospasm after, 443–448
- venous thromboembolism prevention in, 315

Traumatic spinal cord injury, **339–347**

Triage, for traumatic brain injury, 311

Triple-H therapy, for subarachnoid hemorrhage, 328

Tumors

- removal of, for ICP reduction, 381–387
- resection of, vasospasm after, 443–448
- seizures and, 398

U

Ultrasonography. *See also* Transcranial Doppler ultrasonography.

- for pulmonary embolism, 345

Uniform Determination of Death Act, 470–471

United Kingdom Criteria, for brain death, 471, 474

V

Vagal nerve stimulation, for seizures, 401

Valproic acid, for seizures, 400

Vascular endothelial growth factor, as biomarker, in microdialysis monitoring, 423

Vasopressors, for spinal cord injury, 341–342

Vasospasm, in subarachnoid hemorrhage, 327–329, 443–448

Venous thromboembolism. *See* Thromboembolism.

Ventilation, mechanical. *See* Mechanical ventilation.

Ventilation-perfusion scan, for pulmonary embolism, 345

Ventriculostomy

- for hydrocephalus, 322–323
- for ICP monitoring, 364–365

W

Warfarin

- for pulmonary embolism, 345
- intracerebral hemorrhage due to, 353–355

Weaning, from mechanical ventilation, 412–414

Z

Zonisamide, for seizures, 401