

ADVANCES IN ANESTHESIA

INDEX

A

- Abdominal surgery
 - CPNBs for
 - in children, 66–68
- Age
 - as factor in cerebral perfusion and autoregulation, 118
- Anemia
 - CBF effects of, 112
- Anesthesia/anesthetics
 - depth of
 - measurement of, 17–20
 - effects on cerebral perfusion and autoregulation, 112–116
 - intravenous
 - side effects of, 116
 - volatile
 - intravenous, 116
- Aortic dissection
 - type B
 - TEVAR for, 48–49
- Aortic injury
 - traumatic
 - TEVAR for, 49
- Aortic regurgitation
 - TAVI and, 56
- Arterial O₂ content
 - in chemical/metabolic control of CBF, 102–103
- Autoregulation, **97–129**
 - age as factor in, 118
 - carbon dioxide effects on
 - in awake and anesthetized subjects, 108–109
 - described, 98
 - in disease states, 116–120
 - lower limit of, 106–108
 - modern and evolving understanding of, **97–129**
- Awareness. *See also* Consciousness
 - defined, 14–15
 - intraoperative
 - epidemiology of, 15
 - risk factors for, 15–17

B

- Brachial plexus
 - CPNB of
 - infraclavicular approach, 62–64
 - interscalene approach, 65–66
 - supraclavicular approach, 64–65

C

- Calcium channel blockers
 - side effects of, 113–114
- Carbon dioxide
 - in chemical/metabolic control of CBF, 101–102
 - effects on autoregulation in awake and anesthetized subjects, 108–109
 - reactivity of
 - effect of hypotension on, 110–111
- Carotid artery disease
 - interventions for
 - anesthetic technique for, **29–46**
 - intraoperative considerations, 40–41
 - perioperative management-related, 32–42
 - anesthetic techniques, 35–40
 - general *vs.* local, 35, 39–40
 - regional, 35–39
 - monitoring considerations in, 34–35
 - preoperative evaluation in, 32–34
 - postoperative considerations, 41–42
 - types of, 30–32
- Carotid stenosis/occlusion
 - as factor in cerebral perfusion and autoregulation, 119–120
- CBF. *See* Cerebral blood flow (CBF)
- Central nervous system (CNS)
 - robotic surgery in steep Trendelenburg procedure effects on, 87–92
- Cerebral blood flow (CBF)
 - anemia effects on, 112
 - assessment of
 - intraoperative monitors for, 123

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

- Cerebral (*continued*)
 circle of Willis, 100
 control of, 100–106
 chemical/metabolic, 100–103
 myogenic control/autoregulation, 104–106
 neurogenic, 103–104
 described, 98–100
 fundamentals of, 98–106
 hypotension effects on, 112
 propofol effects on, 111–112
 simultaneous factors effects on, 108–112
 temperature effects on, 111–112
- Cerebral ischemia
 assessment of
 intraoperative monitors for, 123
- Cerebral perfusion, **97–129**
 age as factor in, 118
 anesthetic drug effects on, 112–116
 CBF in, 98–106
 described, 98
 in disease states, 116–120
 modern and evolving understanding of, **97–129**
 positioning effects on, 120–123
 surgery in beach chair position, 120–122
 vasoactive drug effects on, 112–116
- Cerebral perfusion pressure (CPP)
 venous effect on, 122–123
- Cerebrospinal fluid (CSF) drainage
 in TEVAR, 52–53
- Checklist(s), **155–169**
 challenges related to, 165–166
 early medical, 157–159
 future directions in, 166
 history of, 156
 limitations of, 163–164
 in medical community, 157
 in overcoming barriers, 165
 surgical application of, 159
 sustainability of, 165–166
 types of, 156–157
 of WHO, 159–162
 adopting, 162–163
 initial success of, 162
- Children
 CPNB for, **61–73**. *See also* Continuous peripheral nerve block (CPNB), for children
- Circle of Willis, 100
- CMRO₂
 propofol effects on, 111–112
 temperature effects on, 111–112
- CNS. *See* Central nervous system (CNS)
- Confusion Assessment Method (CAM)
 in delirium assessment, 4
- Consciousness. *See also* Awareness
 anesthesia and, **13–27**
 connected
 objective measures of, 20–23
 defined, 14
- Continuous femoral nerve block
 for lower limb surgery
 in children, 68–69
- Continuous peripheral nerve block (CPNB)
 for children, **61–73**
 for abdominal surgery, 66–68
 complications of, 62
 infusion strategies, 62
 for lower limb surgery, 68–71
 continuous femoral nerve block, 68–69
 continuous sciatic nerve block, 69–71
 side effects of, 62
 techniques, 62
 for upper limb surgery, 62–66
 infraclavicular approach to brachial plexus, 62–64
 interscalene approach to brachial plexus, 65–66
 supraclavicular approach to brachial plexus, 64–65
 indications for, 61
- Continuous sciatic nerve block
 for lower limb surgery
 in children, 69–71
- CPNB. *See* Continuous peripheral nerve block (CPNB)
- CPP. *See* Cerebral perfusion pressure (CPP)
- Cranial nerve palsies
 anesthetic technique in carotid artery interventions and, 42
- CSF. *See* Cerebrospinal fluid (CSF)
-
- D**
- Delirium
 anesthesiologist's role in, 7–8
 assessment of
 diagnostic tools in, 4
 defined, 1
 hyperactive, 4
 hypoactive, 4
 management of
 pharmacologic, 8–9
 medical care costs related to, 5–6
 mixed-type, 4
 morbidity related to, 3–4
 mortality related to, 3–4
 pathophysiology of, 6–7
 postoperative
 update on, **1–12**. *See also* Postoperative delirium
 prevention of, 7–8
 pharmacologic approach to, 8–9
 risk factors for, 2–3

E

Evoked potential monitoring
in TEVAR, 52

F

Fluid administration
during robotic surgery in steep
Trendelenburg position, 92

G

Gas exchange
robotic surgery in steep Trendelenburg
procedure effects on, 82–84

H

Hematoma(s)
of neck
anesthetic technique in carotid
artery interventions and, 41

Hemodynamics
robotic surgery in steep Trendelenburg
procedure effects on, 81–82

Hyperactive delirium, 4

Hyperperfusion syndrome
anesthetic technique in carotid artery
interventions and, 41–42

Hypertension
chronic
as factor in cerebral perfusion and
autoregulation, 118–119

Hypoactive delirium, 4

Hypotension
carbon dioxide reactivity effects of,
110–111
CBF effects of, 112

I

International Classification of Diseases (ICD)
history of, 132–133

International Classification of Diseases–9
(ICD-9)
to ICD-10, 136–137
overview of, 133
vs. ICD-10, 135
vs. ICD-11

benefits *vs.* consequences,
137–140

International Classification of Diseases–10
(ICD-10)
conversion to, **131–146**
from ICD-9 to, 136–137
implementation of, 140–144
overview of, 133–135
in patient care improvement, 140
physician reimbursements effects of,
135–136
vs. ICD-9, 135
vs. ICD-11

benefits *vs.* consequences,
137–140

International Classification of Diseases–11
(ICD-11)
in patient care improvement, 140
vs. ICD-10
vs. ICD-9
benefits *vs.* consequences,
137–140

Intraoperative awareness, 15–17

Ischemia
cerebral
assessment of
intraoperative monitors for,
123

Ischemic optic neuropathy
prolonged steep Trendelenburg position
and, 122–123

K

Kidney(s)
robotic surgery in steep Trendelenburg
procedure effects on, 92

L

Lower limb surgery
CPNBs for
in children, 68–71

Lung(s)
robotic surgery in steep Trendelenburg
procedure effects on, 84–87

M

Memory
monitoring of, 201
objective measures of, 20–23

MI. *See* Myocardial infarction (MI)

Michigan Awareness Classification
Instrument, 15, 16

Myocardial infarction (MI)
anesthetic technique in carotid artery
interventions and, 41

N

Neck
hematoma of
anesthetic technique in carotid
artery interventions and, 41

Neurovascular unit
in chemical/metabolic control of CBF,
100–101

Nitric oxide (NO) donors
side effects of, 114–115

O

Observational data, **147–154**
confounding of, 149–150

Observational (*continued*)
 techniques to compensate for,
 149–150
 methodological problem related to, 149
 promises of, 147–148
 statistical considerations in, 150–152
 study design, 148

Observational research
 reasons for, 152–153

Operating room safety
 cultural change effects on, 164
 team training in, 164

Oxygen delivery
 anemia effects on, 112
 hypotension effects on, 112

P

PaO₂
 in chemical/metabolic control of CBF,
 102

POCD. *See* Postoperative cognitive
 dysfunction (POCD)

Postoperative cognitive dysfunction (POCD)
 postoperative delirium *vs.*, 9–10

Postoperative delirium, **1–12**
 anesthesiologist's role in, 7–8
 management of
 pharmacologic, 8–9
 morbidity related to, 3–4
 mortality related to, 3–4
 POCD *vs.*, 9–10
 prevalence of, 1–2
 prevention of, 7–8
 risk factors for, 2–3

Propofol
 CBF effects of, 111–112

R

Randomized controlled trial (RCT), 148

Recall
 defined, 14

Rheology
 in chemical/metabolic control of CBF,
 102–103

Robotic surgery
 in steep Trendelenburg position
 anesthetic considerations in, 79–96
 contraindications to, 93
 emergence from, 92–93
 fluid management, 92
 organ system effects of,
 81–93
 CNS, 87–92
 gas exchange, 82–84
 hemodynamics, 81–82
 lung mechanics, 84–87
 renal, 92
 postinduction, 79–81
 postoperative care, 92–93

preoperative considerations,
 76
 selection of anesthetic agents,
 92
 patient positioning in, 76–79
 initial positioning, 77–79

S

Safety
 OR

cultural change effects on, 164
 team training in, 164

Spinal cord injury
 TEVAR and, 49–50

Stroke
 anesthetic technique in carotid artery
 interventions and, 42
 causes of, 30
 mortality due to, 29
 prevalence of, 29–30
 TAVI and, 56
 TEVAR and, 50

Sympatholytics
 side effects of, 115–116

Sympathomimetics
 side effects of, 115–116

T

TAVI. *See* Transcatheter aortic valve
 implantation (TAVI)

TBI. *See* Traumatic brain injury (TBI)

Temperature
 CBF effects of, 111–112
 in chemical/metabolic control of CBF,
 103

TEVAR. *See* Thoracic endovascular aortic
 repair (TEVAR)

Thoracic aortic aneurysm
 TEVAR for, 48

Thoracic endovascular aortic repair
 (TEVAR), **47–53**
 anesthetic considerations in, **47–59**
 complications of, 49–50
 described, 47–48
 durability of, 50
 indications for, 48–49
 mortality related to, 49
 perioperative management, 50–53
 anesthetic type, 50–51
 CSF drainage, 52–53
 evoked potential monitoring, 52
 TEE, 51
 vascular access, 51
 postoperative management, 53
 spinal cord injury due to, 49–50
 stroke due to, 50

Transcatheter aortic valve implantation
 (TAVI), **53–58**

- anesthetic considerations in, 47–59
 - aortic regurgitation due to, 56
 - complications of, 55–56
 - described, 47, 53–54
 - indications for, 54–55
 - mortality related to, 55
 - perioperative management, 56–57
 - postoperative management, 58
 - stroke due to, 55–56
 - TEE in, 57
- Transesophageal echocardiography (TEE)
- in TAVI, 57
 - in TEVAR, 51
- Transverse abdominis plane block and continuous catheters
- in CPNB
 - for abdominal surgery, 66–68
- Traumatic aortic injury
- TEVAR for, 49
- Traumatic brain injury (TBI)
- as factor in cerebral perfusion and autoregulation, 120
- Trendelenburg position
- steep
 - prolonged
 - ischemic optic neuropathy associated with, 122–123
 - robotic surgery in
 - anesthetic considerations in, 79–96. *See also* Robotic surgery, in steep Trendelenburg position, anesthetic considerations in

U

- Upper limb surgery
- CPNBs for
 - in children, 62–66

V

- Vasoactive drugs
- effects on cerebral perfusion and autoregulation, 112–116

W

- World Health Organization (WHO)
- ICD of
 - described, 132–133
- World Health Organization (WHO) Safe Surgery Saves Lives Project, 159–162