

Index

Note: Page number followed by f indicates figure and t indicates table.

A

- ABC-H study, 24, 28f
- ABP-International study, 18f
- ABPM, see ambulatory blood pressure monitoring (ABPM)
- ACE inhibitors, see angiotensin-converting enzyme (ACE) inhibitors
- ACHIEVE-ONE, see Ambulatory Blood Pressure Control and Home Blood Pressure (Morning and Evening) Lowering by N-Channel Blocker Cilnidipine (ACHIEVE-ONE) trial
- ACROBAT study, see ARB and CCB Longest Combination Treatment on Ambulatory and Home BP in Hypertension with Atrial Fibrillation -Multicenter Study on Time of Dosing (ACROBAT)
- Actisensitivity, 80
- AHA/ACC guidelines, 88, 147, 159t
- alpha/beta-adrenergic blockers, 214–215
- alpha-adrenergic activity, 41, 214
- ALPHABET study, 229, 230f
- Ambulatory Blood Pressure Control and Home Blood Pressure (Morning and Evening) Lowering by N-Channel Blocker Cilnidipine (ACHIEVE-ONE) trial, 197–199, 199f, 200f
- ambulatory blood pressure monitoring (ABPM), 1–84, 31t, 148–151, 152t
 - 24-hour BP, 166
 - daytime BP, 166
 - daytime BP parameters, 164f, 165f
 - MBPS parameters, 164f, 165f, 166
 - morning BP parameters, 166, 164f, 165f
 - multi-sensor ABPM, see ICT-based multi-censor ABPM (IMS-ABPM)
 - nighttime BP, 166
 - nighttime BP dipping parameters, 164f, 167
 - nighttime BP parameters, 166, 165f
 - nighttime BP surge parameters, 164f, 166–167
- AML, see amlodipine (AML)
- amlodipine (AML), 194–195, 194f–197f
- angiotensin receptor neprilysin inhibitor (ARNi), 217–221, 218f–220f,
- angiotensin-converting enzyme (ACE) inhibitors, 201, 204f
- angiotensin-receptor blockers (ARB), 190, 201–208
 - azilsartan, 206–208, 211f, 212t
 - candesartan, 204, 205f
 - olmesartan, 205–206, 206f–210f
 - telmisartan, 204, 229, 231f
 - valsartan, 201, 232, 232f, 234–236, 236f, 237f
- anticipation medicine, 278–280, 279f–282f
- antihypertensive drugs, 190, 192t
 - alpha/beta-adrenergic blockers, 214–215
 - amlodipine (AML), 194–195, 194f–197f
 - angiotensin-converting enzyme (ACE) inhibitors, 201, 204f
 - angiotensin-receptor blockers (ARB), 190, 201–208
 - azelnidipine, 199–201, 202f, 203f
 - calcium channel blockers (CCB), 190–201, 192t, 193f–200f
 - carvedilol, 139, 141t, 143f, 197, 289, 293f

- cilnidipine, 197–199, 199f, 200f
 diuretics, 212–213, 213f, 225
 doxazosin, 109f, 139, 143f, 214, 214f, 240
 nifedipine, 141f, 143f, 144f, 195–197, 198f
 AOBP, see automated office BP (AOBP)
 ARB and CCB Longest Combination Treatment on Ambulatory and Home BP in Hypertension with Atrial Fibrillation - Multicenter Study on Time of Dosing (ACROBAT), 229–231, 231f
 ARB, see angiotensin-receptor blockers (ARB)
 ARNI, see angiotensin receptor neprilysin inhibitor (ARNI)
 ARTEMIS (International Ambulatory Blood Pressure Registry: Telemonitoring of Hypertension and Cardiovascular Risk Project) study, 320, 323f
 arterial stiffness type, 222, 225, 238f
 ASCOT-BPLA, 58
 Asia BP@Home study, 325–327, 326f, 327f
 Asian, 315, 317f, 318f, 320f
 assessment, morning hypertension
 ambulatory blood pressure monitoring (ABPM), 31t, 150t, 148–151, 152t
 home blood pressure monitoring (HBPM), 150–151, 152t, 155–158
 atmospheric sensitivity, 76f, 80
 atrial fibrillation detection, 75, 79t, 78f, 79f
 automated office BP (AOBP), 177
 average of morning and evening BPs (ME-ave), 99, 101f, 102f, 112f
 azelnidipine, 199–201, 202f, 203f
 azilsartan, 206–208, 211f, 212t
- B**
- baPWV, see brachial-ankle pulse wave velocity (baPWV)
 baroreceptor sensitivity (BRS), 51, 54f, 61f
 baroreflex index (BRI), 292, 293f
 biomarkers for organ damage, 61f
 blood pressure (BP)
 actisensitivity, 80, 82f–84f
 atmospheric sensitivity, 76f, 80
 average of morning and evening BPs (ME-ave), 99, 101f, 102f, 112f
 beat-by-beat, 285–294, 288f–296f
 circadian rhythm, 1, 3
 day-by-day variability, 51t, 102f, 103
 disaster cardiovascular prevention (DCAP) network, 294–298, 299f, 300f, 302f
 in disaster, 294–305, 299f–305f
 measurement, 155–159, 159t
 morning-evening difference of BPs (ME-dif), 99–100, 100f, 101f
 non-dippers, 3–4, 3f, 164f, 171f
 pre-wakening (morning) surges, 33f, 34, 81f, 164f, 165f
 rising BP surge, 33, 33f, 34
 seasonality, 45f, 109–113, 111f, 112f
 sleep-trough morning surge, 33, 164f, 166
 thermosensitivity, 80, 83f
 BP surge, 119f
 Dynamic, 54f, 282, 283f
 Management, 282, 283f
 morning, 27–51, 31f, 38f, 45f, 49f, 81f, 100f, 164f, 165f
 nighttime, 164t, 165t, 166, 291f, 292f
 resonance hypothesis, 53–54, 54f
 BP variability, 52–53, 53f, 54f, 99f, 99–114, 100f, 102f
 Ambulatory, 57–58, 58f
 day-by-day, 101–102, 102f
 home BP, 99, 100f
 morning-evening difference, 99–100, 100f
 BP, see blood pressure (BP)
 BRS, see baroreceptor sensitivity (BRS)
- C**
- Calcium Antagonist Controlled-Release High-Dose Therapy in Uncontrolled Refractory Hypertensive Patients (CARILLON) study, 195–197, 198f
 calcium channel blockers (CCB), 190–201, 192t, 193f–200f
 for resistant hypertension, 238
 candesartan, 204–205, 205f
 CARDIA study, 24, 29f
 cardiac reactive type, 51, 51t
 Cardiovascular Prognostic Coupling study in Japan (Coupling Registry), 154, 156f, 157f, 158f
 CARILLON study, see Calcium Antagonist Controlled-Release High-Dose Therapy in Uncontrolled Refractory Hypertensive Patients (CARILLON) study
 carotid intima-media thickness (IMT), 38, 38f, 39f, 60f, 101
 Caucasian, 315, 319, 320f, 323f

CCB, see calcium channel blockers (CCB)
 chronic kidney disease (CKD), 42
 chronotherapy, 189–190
 cilnidipine, 197–199, 199f, 200f, 234–236, 236f, 237f
 circadian rhythm of BP, 1, 3
 CKD, see chronic kidney disease (CKD)
 cognitive function, 58f, 60f
 COME Asia-MHDG (Characteristics On the ManagEment of hypertension in the Asia-Morning Hypertension Discussion Group), 311
 Continuous Positive Airway Pressure (CPAP), 135–139, 138f, 139f–142f
 COUPLING registry, see Cardiovascular Prognostic Coupling study in Japan (Coupling Registry)
 CPAP, see Continuous Positive Airway Pressure (CPAP)
 CPET (ChronotheraPy for ambulatory cEnTral pressure) study, 232, 232f
 cutting-edge, HBPM, 115–119, 119t
 IT-based nighttime BP monitoring system (ITNP), 133–135, 138f, 139, 140f
 nighttime BP monitoring at home (Medinode), 119, 120t, 121f
 thermosensitive hypertension, 43, 109–113, 113f
 trigger nighttime BP monitoring (TNP), 119t, 127–133, 132f, 135f, 137f, 139f, 143f

D

daytime (stress-induced) hypertension, 74, 117f, 119f
 daytime BP, 147t, 166, 164t, 165t
 DCAP network, see disaster cardiovascular prevention (DCAP) network
 diagnosis of hypertension, 147, 149f
 diary-based definition, nighttime BP, 164t
 dippers of nighttime BP, 3
 disaster cardiovascular prevention (DCAP) network, 294–298, 299f, 300f, 302f
 diuretics, 193f, 212–213
 doxazosin, 41, 71, 107, 109f, 139, 143f, 214f, 214, 240, 240f
 dynamic BP surge, 54f, 282, 283f

E

Effects of Vasodilating vs. Sympatholytic Antihypertensives on Sleep Blood Pressure in Hypertensive Patients

 with Sleep Apnea Syndrome (VASSPS), 141f–144f, 197
 endothelial dysfunction, 44, 45f–46f, 50, 50f–51f
 ethnic differences, 311, 321f, 323f
 Asian, 311, 321f, 323f
 European Society of Hypertension/
 European Society of Cardiology (ESH/ESC 2018) guidelines, 147, 159t
 exaggerated MBPS, 27, 31, 49–51, 68, 77–79, 107, 137f
 vascular mechanism, 49–51
 examining-room BP, 158, 161f
 extreme dippers, 3f, 4, 24–27, 25f

F

first-line therapy, 222
 Folkow's principle, hypertension, 49, 50f
 fourth-line therapy, 239–240

G

Genki Plaza – Jichi Medical University Hypertension Prediction Scale, 151f
 Genki-Jichi hypertension prediction simulation, 151f
 Great East Japan earthquake, 299f, 302, 302f, 304, 308t

H

HALT, see Hypertension and Lipid Trial (HALT)
 HAST, see home active standing test (HAST)
 HBPM, see home blood pressure monitoring (HBPM)
 head-up tilting test, 54, 55f, 103
 heart failure with preserved ejection fraction (HFpEF), 7, 11f–12f, 219–221
 heart failure with reduced ejection fraction (HFrEF), 7, 11f–12f, 35f, 217
 HI-JAMP study, see Home-Activity ICT-based Japan Ambulatory Blood Pressure Monitoring Prospective (HI-JAMP) study
 home active standing test (HAST), 103–107
 Home blood pressure measurement with Olmesartan Naive patients to Establish Standard Target blood pressure (HONEST) study, 87t, 90–97, 93f–97f

- home blood pressure monitoring (HBPM), 115, 120t
- cutting-edge
- IT-based nighttime BP monitoring system (ITNP), 133–135, 138f, 139, 140f
 - nighttime BP monitoring at home (Medinote), 115, 120t, 121f
 - thermosensitive hypertension, 43, 109–113, 113f
 - trigger nighttime BP monitoring (TNP), 119t, 127–133, 132f, 135f, 137f, 139f, 143f
- home blood pressure monitoring (HBPM), 150–151, 152t, 155–158, 159t
- maximum home SBP, 103, 104t
 - measurement, 155–159, 159t
- home BP variability, 99–100
- Home-Activity ICT-based Japan Ambulatory Blood Pressure Monitoring Prospective (HI-JAMP) study, 82, 84f
- HOMED-BP, 90, 325
- HONEST study, see Home blood pressure measurement with Olmesartan Naïve patients to Establish Standard Target blood pressure (HONEST) study
- HOPE Asia (Hypertension, brain, cardiovascular and renal Outcome Prevention and Evidence in Asia) Network, 311–313, 312f
- Hypertension and Lipid Trial (HALT), 214, 214f
- hypertension, see also resistant hypertension
- disaster hypertension management, 301f
 - masked, 71–72, 75, 147, 148f
 - morning BP surge, 27, 31f
 - morning hypertension, 85–88, 88f, 148–150
 - definition, 148–150, 150t
 - prevalence, 88, 89f
 - stroke risk, 93f
 - thresholds for diagnosis, 149t
- hypertensive heart disease, morning BP surge and organ damage, 38–39
- I**
- ICT-based multi-censor ABPM (IMS-ABPM), 75–80, 76f–78f, 82f, 83f, 283–284, 284f–285f
- ICT-based real-time anticipation medicine, 278, 280, 281f
- IDACO, see International Database on Ambulatory Blood Pressure in Relation to Cardiovascular Outcome (IDACO)
- indices, HBPM variability, 100f
- inflammatory markers, 37, 39
- inhibitors of sodium/glucose cotransporter 2 (SGLT2i), 240–252, 242f–244f, 246f–252f
- insomnia, 252
- International Database on Ambulatory Blood Pressure in Relation to Cardiovascular Outcome (IDACO), 18f, 34, 35f, 37
- IT-based nighttime BP monitoring system (ITNP), 133–135, 138f, 139, 140f
- OSAS management, 130f, 133–139, 136f–138f
- J**
- Japan Ambulatory Blood Pressure Monitoring Prospective study (JAMP study), 5, 6f, 7, 10f–11f, 24, 26f, 27f, 34–36, 36f, 84f
- Japan Morning Surge-Home Blood Pressure (J-HOP) study, 88–90, 90f–91f, 111f, 112f, 121f–124f
- Japan Target Organ Protection (J-TOP) study, 127, 130f, 204, 205f
- Japanese Society of Hypertension (JSH 2019) guidelines, 147, 167, 178t
- J-CORE (Japan-Combined Treatment with Olmesartan and a Calcium Channel Blocker versus Olmesartan and Diuretics Randomised Efficacy) study, 226, 227f–228f
- JET study, 229f, 226
- Jichi Medical University Center of Excellence, Cardiovascular Research and Development (JCARD), xiif
- Jichi Medical University School of Medicine (JMS-ABPM) study, 4f–6f, 9f, 16f, 24, 25f, 28t, 31f, 31t, 34, 37, 39, 41, 46, 73
- Joint National Committee on Prevention, Detection, Evaluation and Treatment of High Blood Pressure (JNC7) guidelines, 88
- L**
- LCZ696 (sacubitril/valsartan), ARNi, 217–221, 218–220, 221t, 238f

left ventricular hypertrophy (LVH), 38–39, 101f
 left ventricular mass index (LVMI), 38–39, 101f
 LVH, see left ventricular hypertrophy (LVH)
 LVMI, see left ventricular mass index (LVMI)

M

masked hypertension, 71–72, 75, 147, 148f
 definition, 147
 morning, 148–150
 nocturnal, 150
 subtypes daytime (stress-induced) hypertension, 75, 75f
 subtypes morning hypertension, 75, 75f
 subtypes nocturnal hypertension, 75, 75f
 subtypes, 75, 75f
 maximum home SBP, 103, 104t
 MBPS, see morning blood pressure surge (MBPS)
 Melatonin, 252
 mini-mental state examination, 16f, 58, 58f
 MoCA-J, Japanese version of the Montreal Cognitive Assessment, 58, 59f
 monitoring device, nighttime BP, 119, 121f, 127, 130f, 133
 morning blood pressure
 cardiovascular risk, 93f–95f
 parameters, 166, 164t
 stroke risk, 93f
 morning blood pressure surge (MBPS), 27, 31f
 antihypertensive drugs, 189, 192t
 cardiovascular events, 34–37, 35f
 definitions, 33–34, 33f
 determinants, 43, 43t
 hemostatic abnormality and, 46–48, 48f
 Jichi Medical University School of Medicine (JMS-ABPM) study, 4f–6f, 9f, 16f, 24, 25f, 28t, 31f, 31t, 34, 37, 39, 41, 46, 73
 morning risk, mechanism of, 44–46, 45f
 organ damage, 37–42, 38f
 chronic kidney disease (CKD), 42
 hypertensive heart disease, 38–39
 silent cerebrovascular disease, 41
 stroke events, 31f
 vascular disease and inflammation, 39–41

 parameters, 164t, 166
 vascular mechanism, 49–51, 50f
 morning BP parameters, 166, 164t, 165t
 24-hour-clock-based definition, 165t
 diary-based definition, 164t
 Morning BP surge and organ damage, 37
 chronic kidney disease (CKD), 42
 hypertensive heart disease, 38–39
 silent cerebrovascular disease, 41
 stroke events, 31f
 vascular disease and inflammation, 39–41
 morning hypertension, 85–88, 88f, 148–150
 antihypertensive treatment, 192f
 blood pressure (BP) level thresholds for the diagnosis of hypertension, 149t
 definition, 148–150, 150t
 determinant, 43t
 evidence, 89–97
 ANAFIE study, 97, 98f
 HOMED-BP, 90
 HONEST study, 90–97, 93f–97f
 Japan Morning Surge-Home Blood Pressure (J-HOP) study, 89–90, 90f–92f
 Ohasama study, 48
 prevalence, 88, 89f
 subtypes, 86, 88f
 morning-evening difference of BPs (ME-dif), 99–100, 100f, 101f

N

neurohumoral hypertension, 220f, 222, 224f
 NICE guidelines, 159t
 Nifedipine, 195–197
 nighttime BP
 cardiovascular prognosis, 4, 4f, 20, 20f, 122, 126f
 different dipping status, 3f
 organ damage, 3, 23f, 25f, 122, 123f, 125f
 stroke prognosis, 19f
 nighttime BP dipping parameters, 164t, 167
 nighttime BP parameters, 164t, 166
 24-hour-clock-based definition, 165t
 diary-based definition, 164t
 nighttime BP surge, 135, 290f, 291f
 antihypertensive medication, 139–141
 nighttime BP surge parameters, 164t, 165t, 166–167

nocturnal hypertension

- antihypertensive treatment, 192t
- associated condition, 20–22, 21t
- cardiovascular risk, 22–24
- circadian rhythm of BP, 3, 21
- definition, 150, 150t
- determinants, 21t
- diabetes, 20f
- extreme dipper, 24–27, 167, 169f
- mechanism, 21, 22f
- non-dipper/risers, 22f
- riser
 - brain, 15, 15f
 - heart failure, 7
- NOCTURNE study, 233, 233f, 234f
- N-terminal pro-brain natriuretic peptide (NT-proBNP), 13, 15f

O

- obstructive sleep apnoea syndrome (OSAS), 127, 131f
 - continuous positive airway pressure (CPAP), 135–139, 138f–142f
- Ohasama study, 48, 89, 101, 325, 324f
- Olmесartan, 205, 206, 206f–210f
- orthostatic hypertension, 54–57
 - detection, 108t,
 - diagnostic method, 108t,
 - home active standing test (HAST) and, 103–107
- OSAS, see obstructive sleep apnoea syndrome (OSAS)
- out-of-clinic BP monitoring, 148f, 152t, 285

P

- PAI-1, see plasminogen activator inhibitor-1 (PAI-1)
- PARAMETER study, 219, 219f, 220f
- PATHWAY-2, 240, 240f
- perfect 24-hour BP control
 - by renal denervation, 256–257
 - triad of, xvif (Preface)
- plasminogen activator inhibitor-1 (PAI-1), 46
- polysomnography, 290f
- PREDICT (Prediction of ICT-Home blood pressure variability) registry, 285, 287f, 288f
- Prehypertension, 50, 51f, 315
- pre-wakening surges, 81f, 164t, 165t
- pulse wave velocity (PWV), 66f

R

- Ramelteon, 252
- RAS inhibitor-based combination, J-CORE study, 226
- RAS, see renin-angiotensin system (RAS)
- renal denervation, 255
 - advances in device, 262–266
 - evidence, 266–270
 - history, 257–262, 259f
 - perfect 24-hour BP control, hypothesis of, 256–257
 - responders, 272–277, 274f
- renin-angiotensin system (RAS), 201
- resistant hypertension, see also hypertension
 - hypertension
- resistive index (RI), 42
- resonance hypothesis of BP surge, 53–54, 54f
- rising BP surge, 33, 33f, 34

S

- sacubitril/valsartan, 217–221, 218–220, 221t, 238f
 - age-related continuum, 220f
 - evidence, 217–221
 - mechanism, 218f
 - targeted phenotypes, 221t
- salt restriction, 179–181, 181f
- salt-sensitive hypertension, 219
- SAS, see sleep apnoea syndrome (SAS)
- SCI, see silent cerebral infarcts (SCI)
- secondary hypertension, 239t
- second-line therapy, hypertension, 222, 225f
- SGLT2i, see inhibitors of sodium/glucose cotransporter 2 (SGLT2i)
- SHATS, see systemic haemodynamic atherothrombotic syndrome (SHATS)
- silent cerebral infarcts (SCI), 5f, 25f, 31f, 32f, 41
- sleep disturbance, 185, 185f
- Sleep Pressure and disordered breathing in RESistant hypertension And cardiovascular Disease (SPREAD), 133–135
 - sleep-trough morning surge, 33, 164t, 166
- small artery remodelling, 49–50, 49f, 50f
- SPREAD, see Sleep Pressure and disordered breathing in RESistant hypertension And cardiovascular Disease (SPREAD)
- SPRINT study, see Systolic Blood Pressure Intervention Trial (SPRINT)

SPYRAL HTN-OFF MED, 266–267, 267f, 271f
SPYRAL HTN-ON MED, 266–267, 267f, 271f, 273f
strain vessels, 65, 65f, 68f
structural hypertension, 219
SUNLIGHT (Study on Uncontrolled Morning Surge for N-type CCB and Low Dose of HCTZ Using the Internet Through Blood Pressure Data Transmission System) study, 234–236, 236f
Super ciRculation monitorinG with high tEchnology (SURGE) research, 115, 119t, 120t
Surge Index, 292–294, 293f
Suvorexant, 252, 253f
Symplcity HTN, 257–261, 262–264, 262f
systemic haemodynamic atherothrombotic syndrome (SHATS), 53f, 59–71, 61f, 61f
 biomarkers, 61f
 case, 61–64, 62f–63f
 clinical relevance, 61f
 mechanism of vicious cycle, 61f, 68
 pathological target, 64–67
 strain vessel hypothesis, 65, 65f, 68f
Systolic Blood Pressure Intervention Trial (SPRINT), 177

T
Telemedicine, 278
Telmisartan, 204

thermosensitive hypertension, 109–113
third-line therapy, 238–239
thrombotic and fibrinolytic activities, 44
tissue-type plasminogen activator inhibitor-1 (PAI-1), 46
Tochigi Salt Cardiovascular Risk Study (T-STARS), 319, 323f
trigger nighttime BP monitoring (TNP), 119t, 127–133
trigger-specific BP sensitivity, 75, 76f, 80
TROPHY study, 152

V

vascular disease and inflammation, morning BP surge and organ damage, 39–41
vascular mechanism, MBPS, 49–51
VASSPS, see Effects of Vasodilating vs. Sympatholytic Antihypertensives on Sleep Blood Pressure in Hypertensive Patients with Sleep Apnea Syndrome (VASSPS)
volume retention type, 225

W

waiting-room BP, 158, 161f
wearable surge BP monitoring (WSP), 285–289, 290f
white-coat hypertension, 71–74, 73f
Wi-SUN transmission, 283–284
World Hypertension League (WHL), 311

