Index

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

A

AASK (African American Study of Kidney Disease) trial, 211
ABCD (Appropriate Blood Pressure Control), 211
ACCOMPLISH (Avoiding Cardiovascular Events through Combination Therapy in Patients Living with Systolic Hypertension), 211–213
ACCORD (Action to Control Cardiovascular Risk in Diabetes), 25–26, 224–225
Adherence to medications, **229–245**
  - adherence cascade for, 230
  - barriers to, 230, 238–239
  - interventions for, types of, 230
  - knowledge gaps in, 239–240
  - results of, 240
  - rewards for, 238
  - statistics for, 229
Adiponectin, 142, 146
Adjuvant therapy, after cardiac transplantation, 58
ADVANCE trial, 164
African American Study of Kidney Disease (AASK) trial, 211
Aging
  - central artery dysfunction in, 82–85
  - hemodynamic alterations in, **81–101**
  - longitudinal perspective of, 84–85
  - renin angiotensin aldosterone signaling effects, 89–95
  - salt sensitivity and, 85–89
  - sixth decade changes in, 83–84
  - third decade changes in, 83
Aldosterone, 176. See also Renin-angiotensin-aldosterone system(s).
  - endogenous, sodium sensitivity and, 86–87
  - in obesity, 143–144
  - synthesis of, 109
Aldosterone antagonists, action of, 49
Aldosteronism, 200
Aliskiren, after cardiac transplantation, 59
Aliskiren Trial in Type 2 Diabetes Using Cardio-Renal Endpoints (ALTITUDE), 20, 213
Alkoxyl radicals, 170
ALLHAT (Antihypertensive and Lipid Lowering to Prevent Heart Attack Trial), 24
Alpha-melanocyte-stimulating hormone, in obesity, 142–143
ALTITUDE (Aliskiren Trial in Type 2 Diabetes Using Cardio-Renal Endpoints), 20, 213
American College of Cardiology/American Heart Association Staging Classification, 21
American Society of Hypertension, 224
AMETHYST-DN trial, 215
Amlodipine, 163
Amlodipine (continued)
  after cardiac transplantation, 58
  for myocardial ischemia, 37
Angioplasty, for renovascular hypertension, 73–75
Angiotensin, 90, 94. See also Renin-angiotensin-aldosterone system(s).
  in obesity, 143
  sodium sensitivity and, 86–87
Angiotensin blockers, 162–163, 212–215
Angiotensin II Antagonist Losartan (RENAAL) trial, 210, 212
Angiotensin receptor blockers, 132–133, 221–222
  action of, 49
  after cardiac transplantation, 58–59
  for renovascular hypertension, 72–73
Angiotensin-converting enzyme, inhibition of, at early age, 90
Angiotensin-converting enzyme inhibitors, 118, 132–133, 212–213, 221–222
  action of, 49
  after cardiac transplantation, 58–59
  for renovascular hypertension, 72–73
Anglo-Scandinavian Cardiac Outcomes Trial (ASCOT), 11
Antihypertensive agents. See also specific agents.
  action of, 49
  adherence to, 229–245
  adverse effects of, 225
  blood pressure goals for, 222–226
  blood pressure measurement and, 159–167
  for chronic kidney disease progression prevention, 210–215
  for diabetic persons, 164–165
  for heart failure, 23–26
  for heart failure prevention, 19–28
  for myocardial ischemia, 36–37
  for obese persons, 145–146
  for renovascular hypertension, 72–77
  for systolic blood pressure, 224
  for transplanted heart, 58–59
  guidelines for, 219–227
  history of, 220
  new recommendations for, 225–226
  public health considerations and, 226
  targets for, 195–206
  types of, 221–222
Antihypertensive and Lipid Lowering to Prevent Heart Attack Trial (ALLHAT), 24
Antioxidants, 174–175
Aorta, stiffening of, diastolic dysfunction in, 8–9
Apoptosis
  left ventricular hypertrophy in, 33–34
  of cardiomyocytes, 46–47
Appropriate Blood Pressure Control (ABCD), 211
apps, for medication adherence, 239
Arachidonic acid, 181
ARIC (Atherosclerosis Risk in Communities), 20
Artery(ies)
calcification of, 93
fibrosis of, 93–95
stiffness of. See Stiffness, arterial.
ARTS-DN (Mineralocorticoid Receptor Antagonist Tolerability Study-Diabetic Nephropathy), 213–214
ASCOT (Anglo-Scandinavian Cardiac Outcomes Trial), 11, 165
ASTRAL study, 71, 75–76
Atherosclerosis, of renal arteries, 65–66
Atherosclerosis Risk in Communities (ARIC), 20, 201
Atrial fibrillation, 35
Atrial natriuretic peptide, salt sensitivity and, 87–89
Autonomic nervous system dysfunction, in obesity, 144
Autophagy, of cardiomyocytes, 47
Autosomal hypertension, 197–198
Avoiding Cardiovascular Events through Combination Therapy in Patients Living with Systolic Hypertension (ACCOMPLISH), 211–213

B
Balloon angioplasty, for renovascular hypertension, 73–75
Baltimore Longitudinal Study of Aging (BLSA), 84–85
Baroreflexes, 144, 180
Behavioral interventions, for adherence to medications, 230–232, 238
Benidipine, 37
Beta blockers, 221
action of, 49
for myocardial ischemia, 36–37
Blood pressure, measurement methods for, 159–167
Blood volume, in obesity, 140
BLSA (Baltimore Longitudinal Study of Aging), 84–85
Brachial blood pressure, 159–165
Brain, reactive oxygen species in, 178–180

C
Calcification, 93, 160
Calcineurin inhibitors, hypertension due to, 54–55
Calcium channel blockers, 213, 221
action of, 49
after cardiac transplantation, 58
for myocardial ischemia, 37
in combination therapy, 163–164
Calpain, 90, 93–94
Canrenone, 95
Captopril, 212
Carbonyls, reactive, 171
Carboxy-terminal telepeptide, 48
CARDIA (Coronary Artery Risk Development in Young Adults) study, 11
Cardiac catheterization, for diastolic dysfunction, 9
Cardiac output, in obesity, 140
Cardiac transplantation, hypertension after, 53–64
Cardiac (continued)
  mechanisms of, 54–57
  treatment of, 57–59
Cardiomyocytes
  apoptosis of, 46–47
  hypertrophy of, 45
Cardiorenal diseases, pathophysiology of, 103–115
Cardiorenal metabolic syndrome, 129–137
Cardiovascular Outcomes in Renal Atherosclerotic Lesions (CORAL), 71, 75–76
CARE (Cholesterol and Recurrent Events) study, 20
Carvedilol, for obesity, 146
Caspase-3, 46
Catalase, 170–171, 174
Catecholamines, response to, corticosteroid effects on, 55–56
Caveolin, 177
Central arteries, dysfunction of, with aging, 82–85
Central blood pressure, 159–165
Central nervous system, reactive oxygen species in, 178–180
Cholesterol and Recurrent Events (CARE) study, 20
Chronic kidney disease
  diastolic dysfunction and, 12
  hypertension in, 207–217
    as risk factor, 209–210
    blood pressure goals in, 210–211
    epidemiology of, 207
    pathophysiology of, 103–115, 208–209
    proteinuria and, 211–212
    therapy for, 212–215
Chronic Kidney Disease Epidemiology Collaboration formula, 207, 210–211
Circumventricular organs, 178–179
Clonidine, after cardiac transplantation, 59
Cockcroft-Gault equation, in chronic kidney disease, 207
Collaborative care, for medication adherence, 231, 233–236
Collagen formation, 47–48, 182
Combined interventions, for adherence to medications, 230
Communication, for medication adherence, 231
Compliance. See Adherence to medications.
Computed tomography
  for myocardial ischemia, 36
  for renovascular hypertension, 70
Computers, for medication adherence, 238–239
Concentric hypertrophy, 10
CORAL (Cardiovascular Outcomes in Renal Atherosclerotic Lesions), 71, 75–76
Coronary artery disease
  diastolic dysfunction in, 9
  myocardial ischemia and, 30, 34
Coronary Artery Risk Development in Young Adults (CARDIA) study, 11
Coronary flow reserve, 34–37, 47
Coronary microvascular dysfunction, 34
Corticosteroids
  endogenous, sodium sensitivity and, 86–87
hypertension due to, 55–56
in obesity, 143
Cortisol, action of, 110
Cost reduction, for medication adherence, 231, 233–234
CpG sites, 202–204
C-reactive protein, left ventricular hypertrophy in, 33
Creatinine, in renovascular hypertension, 71
Cross-sectional coefficients, 162
Cyclic guanosine monophosphate/protein kinase G-dependent mechanism, 87–89
Cyclophilin D, 174
Cyclosporine, hypertension due to, 54–55
Cytokines
  in inflammation, 183
  in obesity, 145
  in renovascular hypertension, 69

D
DASH (Dietary Approaches to Stop Hypertension) interventions, 11, 175, 221
Deformation imaging, for myocardial ischemia, 35
Depression, as barrier to medication adherence, 239
Dexamethasone, hypertension due to, 55–56
Diabetes mellitus
  diastolic dysfunction and, 11–12
  hypertension treatment with, 159–167
  nephrosclerosis in, 105, 107–111
Diastolic dysfunction, 7–17
Diastolic pressure, age changes in, 83
Diet, for hypertension, 219
Dietary Approaches to Stop Hypertension (DASH) interventions, 11, 175, 221
Digital interventions, for medication adherence, 238–239
Diltiazem, 58, 213
Direct renin inhibitors, 59, 133
Diuretics, 212–214, 221
  after cardiac transplantation, 59
  in combination therapy, 163–164
Diurnal variation, after cardiac transplantation, 57–58
DJ-1 transcription modifier, 174–175
DNA methylation, 122–123, 202–204
Duox enzymes, 172

E
Echocardiography
  for diastolic dysfunction, 9
  for myocardial ischemia, 35
Elastic properties, of arteries, 162
Elastin, fragmentation of, 92–93
Electrocardiography, for myocardial ischemia, 35
Electronic technology, for medication adherence, 238–239
Endocrine alterations, in obesity, 142–144
Endothelial dysfunction, 48, 141, 144
Endothelin, 90, 107, 209
Endothelium-derived hyperpolarizing factor, 182
Endothelium-derived relaxing factors, 180–181
End-stage renal disease, progression to, 208–211
Epidermal growth factor receptor, 94–95
Epigenetic changes, 122–123, 202–204
Eplerenone, 213
Ethnicity
  diastolic dysfunction and, 11
  medication adherence and, 239
European Society of Hypertension/European Society of Cardiology recommendations, 223–224
Evidence-Based Guideline for the Management of High Blood Pressure in Adults, 132–133

F
Feedback, for medication adherence, 231, 238
Fibromuscular dysplasias, 66–69, 73–74
Fibronectin, 182
Fibrosis
  arterial, 93–95
  myocardial, 33, 47–48
Finerenone, 213–214
Fli1 (friend leukemia integration 1 transcription factor), 94–95
Framingham Heart Study, 20, 83–84
Friend leukemia integration 1 transcription factor, 94–95

G
Genetics, 195–206
  epigenetic influence, 202–204
  mutations causing, 198–200
  Pickering research, 200–202
  Platt belief, 196–198
Genomewide association studies, 201–203
Ghrelin, in obesity, 142–143
Glomerular filtration rate, in chronic kidney disease, 207, 209
Glomerulosclerosis, 177
Glucocorticoids. See Corticosteroids.
Glutathione peroxidase, 170–171, 174
Gordon syndrome, 196–197
Grape seed extract, 175

H
Haber-Weiss reaction, 171
HARMONIZE (Hyperkalemia Randomized Intervention Multi-dose ZS-9 Maintenance), 214
Heart
  renin in, 119–120
  transplantation of, hypertension after, 53–64
Heart failure
  hypertension prevention and, 19–28
  pathophysiology of, 43–52, 103–115
RAAS, 117–127
Heart Outcomes Protection Evaluation (HOPE), 20
Hemodynamic alterations
  age-associated, 82–85
  in obesity, 140
Histone modification, in RAAS, 33
Homeoproteins, 105
HOPE (Heart Outcomes Protection Evaluation), 20
Hydrochlorothiazide, 132–133, 163–164
Hydrogen peroxide, 170–171, 181–182
Hydroxyl radical, 169, 171
Hyperinsulinemia, 142–143
Hyperkalemia Randomized Intervention Multi-dose ZS-9 Maintenance (HARMONIZE), 214
Hypertension
  after cardiac transplantation, 53–64
  age-associated, 81–101
  challenges in, 1–6
  classification of, 221–222
  definition of, 220–221
  diabetes mellitus and, 11–12, 105, 107–111, 159–167
  diastolic dysfunction and, 7–17
  genetic factors in, 195–206
  heart failure and. See Heart failure.
  in chronic kidney disease, 103–115, 207–217
  in obesity. See Obesity.
  malignant, 219
  myocardial ischemia and, 29–41, 119
  myocardium and, 43–52
  overview of, 1–6
  oxidative stress and, 110, 145, 169–193
  prevalence of, 226
  prevention of, for heart failure prevention, 19–28
  RAAS and. See Renin-angiotensin-aldosterone system(s).
  renal arterial disease and, 65–79
  risk factors for, 54, 160
  secondary, 195–206
  severity of, 221–222
  treatment of, 219–227, 229–245. See also Antihypertensive agents.
    algorithm for, 222
    approaches for, 221–222
    goals of, 222–226
    history of, 219–220
Hypertension in the Very Elderly Trial (HYVET), 24, 223
Hypertrophy, left ventricular. See Left ventricular hypertrophy.
Hypochlorous acid, 170–171
HYVET (Hypertension in the Very Elderly Trial), 24, 223

I
IgA nephropathy, 212
Imaging, for renovascular hypertension, 71
Indapamide, 162–164

Inflammation
- age-associated, 90–91
- in obesity, 145
- left ventricular hypertrophy in, 33
- reactive oxygen species in, 182–184

Informational interventions, for adherence to medications, 230–231, 237–238

Inheritance, of hypertension, 196–198

Insulin resistance
- in obesity, 142–143
- RAAS in, 129–137

Interactive digital interventions, for medication adherence, 238–239

Interferons, in inflammation, 183

Interleukins
- in inflammation, 183
- in obesity, 145

International Society of Hypertension, 224

Intracrine
- in cardiorenal disorders, 103–115
- in RAAS, 119–121

Invasion, of vascular smooth muscle cells, 92

Irbesartan, 212

Ischemic nephropathy, in renovascular hypertension, 69–71

Isogenic shifts, in cardiomyocytes, 45

Isolevuglandin, 171, 183

Isoprostanes, 181

J

Ji. W., 198

JNC-8 Committee, 224

K

Kempner, Walter, 219

Kidney
- dysfunction of, 141–142. See also Chronic kidney disease.
- RAAS in, 121
- reactive oxygen species in, 176–178

L

Left ventricular diastolic dysfunction, 7–17
- assessment of, 9
- clinical factors influencing, 10–12
- geometry of, 9–10
- left ventricular systolic function in, 12
- mechanisms of, 8–9
- prevalence of, 7, 12
- prognosis for, 12–14
- risk factors for, 7
treatment of, 12–14
Left ventricular hypertrophy, 29–41
  calcineurin inhibitor-induced, 54–55
  factors predisposing to, 30, 32–34
  pathophysiology of, 43–52
Left ventricular remodeling, calcineurin inhibitor-induced, 54–55
Left ventricular systolic dysfunction, 12
Leptin, in obesity, 142–143
Liddle syndrome, 196
LIFE (Losartan Intervention For Endpoint), 25, 222
Lifestyle changes, 145–146, 221
Lifton, R. P., 196
Lipid peroxy-radicals, 169
Lipid rafts, in kidney, 177
Lisinopril, 58, 132–133
Losartan Intervention For Endpoint (LIFE), 25, 222
Lysyl oxidase, 48–49

M
Magnetic resonance angiography, for renovascular hypertension, 70
Magnetic resonance imaging, for renovascular hypertension, 68
Malignant hypertension, 219
Marinobufagenin, 86–89, 94–95
Matrix metalloproteinases, 90–94
Mean arterial pressure, 160
Medicare coverage, for medication adherence, 234
Mendelian inheritance, 196–200
Metabolic syndrome, cardiorenal, 129–137
MicroRNA alterations, in RAAS, 33
Microvascular alterations, 48
Midkine, 107
Migration, of vascular smooth muscle cells, 92
Milk fat globule epidermal growth factor, 90
Mineralocorticoid receptor, 108–110, 120–121
Mineralocorticoid Receptor Antagonist Tolerability Study-Diabetic Nephropathy (ARTS-DN), 213–214
Mineralocorticoid receptor antagonists, 133
Minoxidil, after cardiac transplantation, 59
Mitochondria, reactive oxygen species in, 174
MITO-Tempol, 175
Modification of Diet in Renal Disease formula, 207
Monocyte chemoattractant protein, 90
Monocyte(s), in inflammation, 183
Motivation, for medication adherence, 231
Multiple Risk Factor Intervention Trial, 209
Mutations, 196–200
Myeloperoxidase, 170–171
Myocardial fibrosis, 47–48
Myocardial ischemia, 29–41
  angiotensin for, 119
Myocardial (continued)
coronary artery disease and, 30, 34
detection of, 35–36
diastolic dysfunction and, 9
pathophysiology of, 30–31
predisposing factors to, 30, 32–34
silent, 35
treatment of, 36–37
Myocardin-related transcription factor-A, 44–45
Myocardium, hypertension alterations of, 43–52
Myofibrillar proteins, 46

N
Na/K-ATPase, 86–87
National Heart, Lung, and Blood Institute, 224
National Institute for Health and Care Excellence (NICE) guidelines, 134, 223
Natriuresis, 141, 208
Nebivolol, 146
Nephrin, 177
Nephropathy, ischemic, in renovascular hypertension, 69–71
Nephrotoxicity, of calcineurin inhibitors, 55
Nervous system, reactive oxygen species in, 178–180
Neurohumoral activity, diastolic dysfunction in, 9
NICE (National Institute for Health and Care Excellence) guidelines, 223
Nicotinamide adenine dinucleotide phosphate oxidase, 172, 177, 179
Nitric oxide
as free radical, 170
corticosteroids-induced inhibition of, 56
in endothelium, 180–181
production of, in obesity, 142
Nitric oxide synthase, 85–86, 173, 178
Nitrotyrosine, 171
Norepinephrine, in obesity, 144
Nox enzymes, 172, 177
NRF2 transcription modifier, 174–175
Nuclear imaging, for myocardial ischemia, 36
Nucleus tractus solitarius, 179

O
Obesity
diastolic dysfunction and, 11
hypertension in, 139–157
prevalence of, 139
treatment of, 145–146
RAAS in, 129–137
Kidney-1-clip condition, 68–69
ONTARGET (Ongoing Telmisartan Alone or in Combination with Ramipril Global Endpoint Trial), 213
OPAL-HK study, 215
Organum vasculosum of the lamina terminalis, 178
Orlistat, for obesity, 146
Osteonectin, 93
Osteopontin, 93
Overweight. See Obesity.
Oxidative stress, 169–193. See also Reactive oxygen species.
  antioxidant defense mechanisms for, 174–175
  definition of, 170
  in central nervous system, 178–180
  in inflammation, 182–184
  in kidney, 176–178
  in myocardium, protection of, 110
  in obesity, 145
  vascular, 180–182
Oxygen free radicals. See Reactive oxygen species.

P
Parasympathetic regulation, disturbance of, after cardiac transplantation, 57
Parathyroid hormone-related protein, 107
PATHWAY-2 (Spironolactone versus Placebo, Bisoprolol, and Doxazosin to Determine thee Optimal Treatment for Drug Resistant Hypertension) trial, 213
Patient education, for medication adherence, 231
Patiromer, 214–215
Perindopril, 162–164
Peripheral pressure, 161, 163
Peroxynitrite radical, 170, 181
Peroxynitrous acid, 171
Peroxy-radicals, 169
Peterson elastic modulus, 162
Pharmacists, medication adherence and, 233–236
Phosphoinositol 3 kinase, 120
Physical activity
  for heart failure prevention, 21–23
  for obesity, 145–146
Pickering, Sir George, 200–202
Platt, Robert, 196–198
Pregnancy, RAAS in, 123
Prehypertension, 221
Preoptic periventricular nucleus, 178
Pressure overload, diastolic dysfunction in, 8
Pressure wave reflections, 160–161
Prion-like cardiorenal disorders, 103–115
Proinflammation, age-associated, 90–91
Proliferation, age-associated, 90, 92
“Proof of principle” studies, 219
Prostaglandins, production of, calcineurin inhibitor-induced, 54
Protein kinase G, 48
Proteinuria, 177, 211–212
Public health considerations, 226
Pulse pressure
Pulse (continued)
  age changes in, 83–84
  measurement of, 159–167
Pulse wave reflection, 161–164
Pulse wave velocity
  age-associated changes in, 84–85
  diastolic dysfunction in, 9
  measurement of, 161–164

R
RAAS. See Renin-angiotensin-aldosterone system(s).
Racial factors, medication adherence and, 239
Ramipril Efficacy in Nephropathy-2 (REIN-2) trial, 212
Ranolazine, for myocardial ischemia, 37
Reactive carbonyls, 171
Reactive oxygen species, 169–193
  defense mechanisms for, 174–175
  examples of, 169–171
  formation of, 169–170
  hypertension contribution of, 175–184
  imbalance of. See Oxidative stress.
  in central nervous system, 178–180
  in inflammation, 182–184
  in kidney, 176–178
  in vascular system, 180–182
  physiologic roles of, 170
  sources of, 172–174
REASON study, 160, 162–163
Regimen simplification, for medication adherence, 231
REIN-2 (Ramipril Efficacy in Nephropathy-2) trial, 212
Reminders, for medication adherence, 231
Remodeling
  left ventricular, 54–55
  RAAS in, 89–95
  reactive oxygen species in, 182
RENAAL (Angiotensin II Antagonist Losartan) trial, 210, 212
Renal artery disease, 65–79
  causes of, 67
  differential diagnosis of, 72
  epidemiology of, 65–68
  history of, 65
  pathophysiology of, 68–69
  treatment of, 72–77
Renal nerves, reactive oxygen species in, 180
Renal vein, renin measurement in, 71
Renin inhibitors, action of, 49
Renin-angiotensin-aldosterone system
  dysfunction of, 208–209
  in obesity, 143–144
Renin-angiotensin-aldosterone system(s)
activation of, 55
blockade of, 131–133
conventional, 117–119
in arterial remodeling, 89–95
in cardiorenal metabolic syndrome, 130–134
in obesity, 130–134
in pregnancy, 123
in renovascular hypertension, 68–69
local, 117–127
  epigenetic changes and, 122–123
  in kidney, 121
  intracrin and, 119–121
  vascular smooth muscle pathology and, 120, 122
  versus conventional, 117–119
pathophysiology of, 103–115
Renovascular disease, 65–79
Residual cardiovascular risk, 160
Restrictive-constrictive physiology, after cardiac transplantation, 56
Revascularization, for renovascular hypertension, 73–75
Reverse electron transport, 174
Rimonabant, for obesity, 146
ROS. See Reactive oxygen species.
Rostral ventral lateral medulla, 179

Salt. See Sodium.
SardNIA Study, 84
SAVE (Survival and Ventricular Enlargement) trial, 118
Scandinavian Simvastatin Survival Study, 23
Secondary hypertension, genetics of, 195–206
Self-monitoring, for medication adherence, 231, 233, 236–237
SHEP (Systolic Hypertension in the Elderly Program), 24, 220, 222–223
Sibutramine, for obesity, 146
Signaling proteins, 104–106
SMAD protein, 94
Smartphones, for medication adherence, 238–239
Smithwick, Reginald, 219
Social interventions, for adherence to medications, 230
Social support, for adherence to medications, 237–239
Sodium
  dietary intake of, diastolic dysfunction and, 11
  handling of, in cardiorenal metabolic syndrome, 130
  impaired homeostasis of, in obesity, 140–141
  restriction of, in obesity, 145–146
  sensitivity to, 55, 85–89
  transport of, 177–178
Sodium polystyrene sulfonate, 214–215
Sodium pump ligands, 86–87
Sodium-potassium adenosine triphosphate ligand, 94–95
Spironolactone, 95, 213
Spironolactone versus Placebo, Bisoprolol, and Doxazosin to Determine the Optimal Treatment for Drug Resistant Hypertension (PATHWAY-2) trial, 213
SPRINT (Systolic Blood Pressure Intervention Trial), 25–26, 211, 224–225, 230
STAR trial, 75–76
Stenting, for renovascular hypertension, 74–75
Stiffness, arterial, 82–101
  in obesity, 144–145
  indexes of, 162
  left ventricular hypertrophy in, 33
  treatment of, 159–167
Stress perfusion MRI, for myocardial ischemia, 36
String-of-beads appearance, in fibromuscular dysplasia, 66–67
Stroke, arterial stiffness in, 162
Subfornical organ, 178
Sudden death
  in hypertension, 30
  prevention of, 37
Superoxide, 169, 182
Superoxide dismutase, 170–171, 174, 179
Superoxide radical, 170–171
Survival and Ventricular Enlargement (SAVE) trial, 118
SU/VI.Max study, 175
Swedish Obese Subjects study, 146
Sympathectomy, lumbodorsal, 219
Sympathetic nervous system
  activation of, calcineurin inhibitor-induced, 55
  dysfunction of, 208
  in obesity, 131, 144
  reactive oxygen species in, 178–180
Syst-Eur (Systolic Hypertension in Europe Trial), 220
Systolic blood pressure
  measurement of, 159–167
  research on, 220
Systolic Blood Pressure Intervention Trial (SPRINT), 25–26, 211, 224–225, 230
Systolic dysfunction, left ventricular, 12
Systolic hypertension, age factors in, 81–82, 84
Systolic Hypertension in Europe Trial (Syst-Eur), 220
Systolic Hypertension in the Elderly Program (SHEP), 24, 220, 222–223

T

T cells
  in inflammation, 182–183
  in obesity, 145
Tacrolimus, hypertension due to, 54–55
Team approach, medication adherence and, 231, 233–236
Technology, for medication adherence, 238–239
Telemonitoring, of medication adherence, 233
Telodipine, for myocardial ischemia, 37
Tempol, 175
Tetrahydrobiopterin, 173
Thromboxane, production of, calcineurin inhibitor-induced, 54
Tissue transglutamase, 93
Torasemide, 48–49
Transforming growth factor β1, 90, 94, 107–108
Transient receptor potential channel, 182
Transplantation, cardiac, hypertension after, 53–64
Treatment of Hypertension Prevention Trial, in obesity, 145
TROPHY (Trial of preventing hypertension) study, 132–133
Kidney-1-clip condition, 68–69

V
VA NEPHRON-D (Veterans Affairs Nephropathy in Diabetes), 213
Vascular endothelial growth factor, 107
Vascular smooth muscle cells
  age-associated changes of, 89–95
  in obesity, 141
  RAAS and, 120, 122
Vascular system, reactive oxygen species in, 180–182
Vasoactive agents, after cardiac transplantation, 59
Vasoconstrictors, production of, 54
Vasodilation
  in obesity, 144–145
  inhibition of, 54
Ventricular vascular uncoupling, after cardiac transplantation, 56–57
Verapamil, 213
Veterans Administration Cooperative Study, 23–24, 118, 219–220
Veterans Affairs Nephropathy in Diabetes (VA NEPHRON-D), 213
Vitamins, as antioxidants, 175
Volume overload, diastolic dysfunction in, 9

W
Wall cross-sectional area, 162
Weight gain, calcineurin inhibitor-induced, 55
Weight loss, in obesity, 145–146
White, P. C., 196
Wilkens, Robert, 219

X
Xanthine oxidase, 173–174

Y
Young’s elastic modulus, 162

Z
Zirconium cyclosilicate, 214–215