

Contents

1 Epidemiology

Introduction	2
Definition	2
Gender-Specific Mortality Rates	3
Morbidity and Mortality with Respect to Age and Gender	4
Perception.	6
Mortality in Myocardial Infarction:	
Comparison Between Women and Men	6
International Comparisons	7
The “MONItoring Cardiovascular Disease” Project of the WHO (WHO MONICA Project)	10

2 Cardiovascular Risk Factors and the Development of Coronary Heart Disease in Women

Smoking	16
Dyslipidemia	17
Lipoprotein (a)	19
Diabetes Mellitus	20
Insulin Resistance and Polycystic Ovary Syndrome	21
Family History of Coronary Heart Disease or Genetic Disposition	23
Hypertension	23

Sedentary Lifestyle	23
Obesity	25
Homocysteine	26
High sensitivity C-reactive Protein	27
Risk Factors Unique to Women	28
Menopause	28
Oral Contraception.	29

3 Pathophysiology of Coronary Heart Disease and the Effects of Estrogen

Basics	36
Plaque Formation and Significance of Plaques in CHD.	36
Effects of Estrogen	38
Effect of Estrogen on Vascular Reactivity and Endothelial Function	39
Effect of Estrogen on Lipid Metabolism	41
Antioxidative Effect of Estrogen	42
Effect of Estrogen on Inflammation	43
Effect of Estrogen on Hemostasis	43

4 Stable Angina

Definition and Pathophysiology of Angina Pectoris	48
Diagnosis Based on Symptoms	49
Prinzmetal’s or Variant Angina	50
Syndrome X.	51
Diagnostic Evaluation	52
Electrocardiogram	52

Contents

Stress Testing, Including Stress Echocardiography and Nuclear Imaging.	52
<i>Determination of Pretest Probability for CHD</i>	52
<i>Selection of Stress Test</i>	53
<i>Stress ECG</i>	53
<i>Nuclear Imaging</i>	55
<i>Stress Echocardiography</i>	56
<i>Pharmacological Stress Tests</i>	58
Electron Beam Computed Tomography	61
Magnetic Resonance Imaging	61
Diagnostic Cardiac Catheterization.	61
Gender Differences in the Use of Diagnostic Cardiac Catheterizations and Percutaneous Coronary Intervention	62
Medical Management	64
Beta-blockers	64
Nitrate	66
Calcium Channel Blockers.	66
Percutaneous Coronary Intervention for Stable Angina	67
Gender-Specific Success and Complication Rates for Balloon Angioplasty	69
Gender-Specific Success and Complication Rates for Coronary Intervention with Stent Implantation	71
Restenosis.	74
Rotablator Therapy, Directional Coronary Atherectomy, Laser Therapy.	74
Multivessel Coronary Intervention – When PCI? When Bypass Surgery?.	75

5 Acute Myocardial Infarction

Progression from Stable Coronary Heart Disease to Myocardial Infarction	84
Epidemiology of Acute Myocardial Infarction	85
Pathophysiology	87

Clinical Presentation

of Acute Myocardial Infarction 89

Silent Myocardial Infarction. 89

Symptomatic Myocardial Infarction 90

Criteria for the Diagnosis of Acute Myocardial Infarction . . . 90

Clinical Presentation 90

Electrocardiogram 91

Serum Markers of Cardiac Damage. 91

Creatine Kinase and the CK Isoenzyme CK-MB. 91

Troponin T and I 92

Therapy. 92

Revascularization. 93

Thrombolytic Therapy 93

Primary Percutaneous Transluminal Coronary Angioplasty . . 94

Thrombolysis Versus Primary PTCA 96

*Rescue PTCA after Thrombolysis
of Acute Myocardial Infarction 97*

Medical Therapy of Acute Myocardial Infarction 98

Aspirin. 99

Beta-blockers 99

Unfractionated Heparin 99

Calcium Channel Blockers. 100

ACE Inhibitors 100

Nitrates 100

Complications 101

Prognosis 102

Mortality in Acute Myocardial Infarction
(With and Without Thrombolysis) 103

Mortality in the Pre-thrombolytic Era
(Mid-1960s to Early-1980s) 105

Mortality in the Thrombolytic Era (1980 to Present) 105

Influence of Gender on the Referral for Coronary Angiography in Patients with Acute Myocardial Infarction	107
----------------------------------------------------------------------------------------------------------------------------	------------

6 Acute Coronary Syndromes

Non-ST-Elevation Myocardial Infarction/Unstable Angina	116
Definition	118
Presentation	118
Diagnosis	119
Therapy	120
Medical Therapy	120
<i>Aspirin</i>	120
<i>Unfractionated Heparin</i>	121
<i>Low-Molecular-Weight Heparin</i>	121
<i>Glycoprotein IIb/IIIa Receptor Antagonists</i>	122
<i>Nitrates</i>	127
<i>Beta-blocker</i>	127
<i>Calcium Channel Blocker</i>	127
Interventional Therapy	127

7 Coronary Artery Bypass Surgery

Operative Mortality	134
Complications Associated with CABG	138
Long-Term Outcomes	139
Indication for CABG Surgery	140
Comparison of CABG with Multivessel Angioplasty	141

8 Primary and Secondary Prevention of Coronary Heart Disease

- Class I Interventions** 148
 - Treatment of Hyperlipidemia 148
 - Diet* 149
 - Medical Therapy of Dyslipidemia* 151
 - Primary Prevention Trials* 151
 - Primary Prevention with Estrogen* 151
 - Secondary Prevention Trials with Statins* 152
 - Secondary Prevention Trials with Medications Other Than Statins* 154
 - Treatment of Hypertension 155
 - Aspirin 160
 - Primary Prevention of CAD with Aspirin* 160
 - Secondary Prevention with Aspirin* 160
- Class II Interventions** 161
 - Physical Activity 161
 - Primary Prevention Studies* 162
 - Secondary Prevention Studies* 162
 - Weight Reduction 164
 - Alcohol 164
- Class III Interventions** 166
 - Antioxidants 166
 - Vitamins E and C* 166
 - Beta-carotene* 168

9 Hormone Replacement Therapy

- Hormone Replacement Therapy and Prevention of Coronary Heart Disease** 176
- Observational Studies for Primary and Secondary Prevention** 177
- Randomized Primary Prevention Trials** 178

Randomized Secondary Prevention Trials	180
Clinical Implications of Hormone Replacement Therapy . . .	185
Combination Therapy	187
Risk of Breast Cancer with HRT.	187
Risk of Ovarian Cancer with HRT	190
Risk of Endometrial Cancer with HRT	190
Risk of Deep Vein Thrombosis and Thromboembolic Events . .	191
Estrogen and High Sensitivity C-reactive Protein	192
Biological Mechanisms of Hormone Replacement Therapy .	193
Lipids and Antioxidant Effects of Estrogen	193
Glucose Metabolism	194
Hemostasis	195
Vascular Reactivity.	195
Impact on Markers of Inflammation	196
Selective Estrogen Receptor Modulators	196
Soy Protein	198

10 Future Directions