

Chapter 1

The Endothelium in Atherothrombosis

Noyan Gokce and Joseph Loscalzo

Endothelial Regulation of Vasomotor Tone	3
Endothelial Dysfunction and Inflammation	10
Endothelial Dysfunction and Thrombosis	11
Potential Therapies to Improve Endothelial Function	14

Chapter 2

The Macrophage and the Atherosclerotic Process

Galina K. Sukhova and Peter Libby

Lesion Formation	22
Macrophage Infiltration	27

Chapter 3

Structure of the Plasma Lipoproteins

**David W. Garber, Jere P. Segrest, and
G.M. Anantaramaiah**

Definition and Classification	34
Basic Structure	36
Nature of the Bond Formed Between Apolipoproteins and Lipids	39
High-density Lipoprotein and Atherosclerosis Therapy	41
Structure of Individual Lipoprotein Classes and Subclasses ..	44

Chapter 4

Triglyceride-Rich Lipoproteins

Ngoc-Anh Le and W. Virgil Brown

Plasma Triglycerides and Risk of Cardiovascular Disease ...	54
Defining Hypertriglyceridemias	56
Etiology of the Hypertriglyceridemias	57
Synthesis and Metabolism of Chylomicrons and Very Low-density Lipoproteins	59
Specific Defects in Metabolism	61
Inherited Syndromes with Hypertriglyceridemia	64
Clinical Trials of Triglyceride-reducing Drugs	66
Gene Regulation of Apo C-III	70
Role of Apo E in Triglyceride Metabolism	72
Novel Markers for Coronary Artery Disease and Triglycerides	73
Metabolism of Triglyceride-rich Lipoproteins, Immune Response, and Atherosclerosis	74

Chapter 5

Low-Density Lipoproteins in Atherogenesis

Sampath Parthasarathy

Structure of Low-density Lipoproteins84
Formation and Clearance of Low-density Lipoprotein85
Atherogenic Lipoproteins88
Lipid Peroxidation and Oxidized Low-density Lipoprotein ..	.92
Scavenger Receptors98
Oxidation, Antioxidants, and Atherosclerosis99

Chapter 6

High-Density Lipoprotein Metabolism

H. Bryan Brewer, Jr.

HDL and Premature Cardiovascular Disease	106
HDL Structure and Metabolism	107
ABCA1 Transporter	110
Familial Hyperalphalipoproteinemia	112
Familial Hypoalphalipoproteinemia	114

Chapter 7

Dietary Effects on Cardiovascular Risk Factors

Alice H. Lichtenstein

Cardiovascular Disease Risk, Diet, and Lifestyle	124
Dietary Fat and Body Weight	124
Dietary Patterns	130
Omega-3 Fatty Acids	133
Hydrogenated Fat	134
Dietary Cholesterol	135
Fiber	136
Alcohol	137
Folate and Homocysteine	138
Plant Sterols	138
Soy Protein and Soy-derived Isoflavones	140

Chapter 8

Strategies for Treating Abnormal Lipid Profiles with Drugs

Neil J. Stone

Lipoprotein Metabolism	147
Statins	148
Gastrointestinally Active Drugs	156
Niacin or Nicotinic Acid	157
Fibrates or Fibric Acid Drugs	159
Fish Oils or Omega-3 Fatty Acids	161
Combination Therapy	162
Conclusions	163

Chapter 9

The Newer Coronary Risk Factors

Peter W.F. Wilson

Hematologic Factors	169
Vitamins and Homocysteine	179
Glucose Metabolism, Insulin, and Insulin Resistance	183
Imaging	185

Chapter 10

The Metabolic Syndrome

Scott M. Grundy

Major Clinical Outcomes	193
Metabolic Components (Metabolic Risk Factors)	194
Pathogenesis (Underlying Risk Factors)	195
Clinical Criteria for Diagnosis	203
Risk for Clinical Outcomes	207
Therapeutic Interventions	208

Chapter 11

Diabetes Mellitus and Vascular Disease Risk

**James B. Meigs, Peter W.F. Wilson, Ira J. Goldberg,
Clay F. Semenkovich, and Henry N. Ginsberg**

Incidence of Atherosclerosis in Diabetic Patients	214
Outcome of Diabetic Patients with Atherosclerosis	216
Why Does Diabetes Increase Atherosclerosis?	219
Lipoprotein Metabolism and Diabetes Mellitus	221
Overall Approach	233

Chapter 12

Gender Differences in Coronary Risk Factors and Risk Interventions

Nanette K. Wenger

Diabetes Mellitus	240
Cigarette Smoking	243
Cholesterol, Lipoproteins, and Triglycerides	245
Hypertension	252
Obesity and Body Fat Distribution	255
Exercise and Physical Fitness	257
Estrogen Status and Gonadal Hormone Therapy	259
Miscellaneous	263

Chapter 13

Cost-Effectiveness of Risk Factors

Paul A. Heidenreich and Harlan M. Krumholz

Overview	278
Cholesterol Reduction	281
Hypertension Treatment	286
Smoking Cessation	287
Diabetes Treatment	290

Index	293
--------------------	-----