

Clinical
ANTICOAGULANT
THERAPY

I. MYRON VIGRAN

CLINICAL

ANTICOAGULANT THERAPY

I. MYRON VIGRAN, M.D., M.S. (in Med.)

Fellow, American College of Physicians, American College of Cardiology, American College of Chest Physicians and International College of Angiology; Associate Attending Physician, Cedars of Lebanon Hospital; Associate Physician, Mount Sinai Hospital, Los Angeles, California; Director, Research Foundation for Circulatory Disease, Beverly Hills, California; Formerly Instructor in Medicine, University of Southern California.

with

Collaborating Authors

and

A Foreword by Irving S. Wright

63 Illustrations One in Colour

LONDON

HENRY KIMPTON

134 GREAT PORTLAND STREET, W.1.

1965

CONTENTS

1. THE HISTORY OF ANTICOAGULANTS	28
Leeches	28
Heparin	29
Oral Anticoagulants	31
Calendar of Historical Events	33
2. BLOOD COAGULATION <i>By Arnold G. Ware</i>	36
Mechanisms Involved in Hemostasis	36
Vascular Response to Injury	36
Formation of Blood Clot	36
Stage One. Thromboplastin	36
Stage Two. Prothrombin	36
Stage Three. Clotting of Fibrinogen	37
Dissolving of Clot	38
Inhibitors	38
Laboratory Procedures	38
Suggested Procedures for Detecting Clotting Deficiencies	41
3. THROMBOSIS, EMBOLISM AND ATHEROSCLEROSIS	44
Thrombus and Embolus Formation	44
Morphology	44
Gross	44
Histology	44
Etiology	47
Blood Stasis	47
Venous	47
Arterial	47
Injury to the Vessel Wall	47
Hypercoagulability	47
Mucopolysaccharides	48
Pressor Substances	48
Lipid Complexes	48
Role of Lipemia	48
Subsequent Course of Thrombi	48
Effect of Anticoagulant Therapy	49
Recanalization	49
Venous	50
Arterial	50
Prevention of Fibrin Formation	50
Atherosclerosis	50
Etiology	50
Lipid Infiltration	50

Intimal Thrombosis	51
Intimal Hemorrhage	51
Clinical Correlations	53
Diet	53
Obesity and Habitus	53
Associated Diseases	53
Emotions	54
Smoking	54
Exercise	54
Sex Incidence	54
Drugs and Hormones	54
Impending Myocardial Infarction	55

4. THE CHEMISTRY AND PHARMACOLOGY OF ANTICOAGULANT DRUGS

Heparin. <i>By Leon Freeman</i>	62
Chemistry and Structure	62
Biological Activities	63
Natural Origin	64
Role in Nature	64
Anticoagulation	64
Lipid Metabolism	64
Allergy	65
Pharmacology	65
Anticoagulation	65
Lipolytic Effect	65
Absorption	66
Metabolism and Excretion	66
Toxicity	66
Standards and Preparations	66
Oral Anticoagulants	68
The Coumarins	68
Chemistry and Structure	68
Biological Activities	69
Role in Nature	69
Anticoagulant Effect	69
Other Biologic Actions	71
Pharmacology	71
Absorption	71
Metabolism	72
Storage and Excretion	73
Toxicity	73
Preparations	73
The Indandiones	74
Chemistry and Structure	74
Biological Activities	74
Pharmacology	74
Preparations	75

	Contents	19
Anticoagulant Antagonists		76
Antiheparin Agents		76
Protamine Sulfate		76
Toluidine Blue		76
Polybrene		77
Anticoumarin and Antiindandione Agents		77
Chemistry and Structure		77
Biological Activities		77
Pharmacology		79
Toxicity, Side Effects and Contraindications		79
Preparations		79
5. CONTRAINDICATIONS TO USE		84
Absolute Contraindications		84
Relative Contraindications		85
6. LABORATORY CONTROLS. By I. Myron Vigran and Arnold G. Ware		90
Tests to Control Heparin Therapy		90
Lee-White Clotting Time		90
Capillary Clotting Time		91
Mayer Clotting Time		92
Plasma Clot (Recalcification) Time		93
Tests to Control Oral Anticoagulants		94
Quick Method		96
Link-Shapiro Modification		99
The Owren P and P Test		100
Ware-Stragnell Modified One-Stage Prothrombin Method		101
Thrombotest		105
Micro-Whole Blood Methods		109
Manchester Prothrombin Time		109
Method of Glover and Kuzell		110
Modified Thrombotest		112
Others		112
Additional Pertinent Tests		112
Platelet Examinations		113
Clot Retraction of Whole Blood		114
Tests to Evaluate Vascular Factors		114
Bleeding Time		114
Tourniquet (Capillary Fragility) Test		115
Tests for Overall Evaluation of Clotting		115
The Partial Thromboplastin (Cephalin) Time		115
Physician's Records		117
7. GENERAL CONSIDERATIONS		122
Evaluation of Patients for Therapy		122
Acute Conditions		122
Long-term		122

Selection of the Anticoagulant	123
Heparin	124
Oral Anticoagulants	126
Heparin Versus Oral Anticoagulants	130
Acute Myocardial Infarction	131
Impending Myocardial Infarction	133
Angina	133
Shock and Cardiac Arrest	133
Cerebral Vascular Disease	134
Venous Thromboembolism	134
Miscellaneous Other Conditions	134
Selection of Method of Control	135
Heparin	135
Oral Anticoagulants	135
Effective Therapeutic Range	137
Evidence for a Lower Level of Activity	137
Evidence Against the Need for a Lower Level of Activity	137
Physician's Records	137
Patients' Instructions	139
Antidotes for Hemorrhage	141
Heparin	141
Oral Anticoagulants	141
Hazards of Discontinuance of Therapy (Rebound Phenomenon)	141
Dental Procedures and Emergency Surgery	143
Changes in Serum Enzymes	143
Effects of Various Drugs and Diseases	143

8. CORONARY ARTERY DISEASE 152

Acute Myocardial Infarction	152
Rationale of Anticoagulant Therapy	152
Clinical Diagnosis	153
Treatment with Anticoagulants	153
"Good Risk" and "Poor Risk" Patients	153
Plan of Treatment	154
Hazards of Misdiagnosis	155
Risks of Complications	156
Evaluation of Therapeutic Effectiveness	157
Mortality	157
Thromboembolic Complications	164
"Good Risk" versus "Poor Risk"	167
Conclusions	169
Long-term Treatment of Coronary Artery Disease	169
Indications for and Rationale of Therapy	169
Angina or Myocardial Insufficiency	170
Clinical Diagnosis	170
Plan of Treatment with Anticoagulants	171
Hazards of Misdiagnosis	171
Risks of Complications	172

Impending Myocardial Infarction	172
Clinical Diagnosis	172
Plan of Treatment with Anticoagulants	172
Heparin	172
Oral Anticoagulants	173
Hazards of Misdiagnosis	173
Risks of Complications	173
Thromboembolism Prophylaxis of Recurrent (Myocardial Infarction)	173
Rationale	173
Plan of Treatment	173
Heparin	173
Oral Anticoagulants	174
Hazards of Misdiagnosis	174
Risks of Complications	174
Results of Long-term Anticoagulant Therapy to Date	174
Angina	174
Impending Myocardial Infarction	176
Prophylaxis of Recurrent Myocardial Infarction	177
Conclusions	178

9. OTHER CARDIOPULMONARY CONDITIONS. 188

Congestive Heart Failure	188
Pulmonary Hypertensive States	188
Thromboembolic Pulmonary Hypertension	188
Acute Pulmonary Embolism and Infarction. <i>By Joseph F. Boyle,</i>	
<i>Reginald H. Smart and John K. Shirey</i>	188
Pathogenesis	189
Clinical Manifestations	189
Physical Findings	192
X-ray Evidence of Pulmonary Embolism and Infarctions	193
Electrocardiographic Changes	195
Other Laboratory Studies	195
Treatment	196
Anticoagulation	196
Therapeutic	196
Prophylactic	197
Subacute and Chronic Pulmonary Embolism and Cor Pulmonale	198
Primary Pulmonary Hypertension	200
Eisenmenger Group	200
Rheumatic Heart Disease	201
Mitral Stenosis	204
Mitral Stenosis Without Pulmonary Hypertension	205
Mitral Stenosis With Reactive Pulmonary Hypertension	205
Reversion of Cardiac Arrhythmias	206

10. CEREBRAL VASCULAR DISEASE 210

Diagnostic Methods	210
Cerebral Hemorrhage	212

Cerebral Emboli	212
Classification	212
Etiology and Rationale of Therapy	212
Rheumatic Heart Disease	212
Myocardial Infarction	213
Other Causes	213
Clinical Diagnosis	213
Treatment with Anticoagulants	213
Acute Episode	213
Long-term Therapy	214
Cerebral Thrombosis	215
Classification	215
Pending or Incipient Stroke	215
Advancing Stroke	215
Completed Stroke	215
Clinical Syndromes	215
Carotid Artery Insufficiency	216
Basilar Artery Insufficiency	217
Rationale of Therapy	217
Treatment with Anticoagulants	218
Risks of Misdiagnosis	219
Risks of Complications	219
Results of Anticoagulant Therapy	219
Cerebral Embolism	220
Cerebral Thrombosis	220
Incipient or Impending Stroke	220
Progressing Stroke or Stroke in Evolution	220
Completed Stroke	220
 11. PERIPHERAL VASCULAR DISEASE. <i>By Ellen McDevitt</i>	228
Arterial Occlusive Disease	228
Arterial Emboli	228
Etiology	228
Clinical Diagnosis	228
Treatment	229
Dangers of Misdiagnosis	229
Results of Anticoagulant Therapy to Date	229
Arteriosclerosis Obliterans	230
Rationale of Therapy	230
Clinical Diagnosis	231
Treatment with Anticoagulants	231
Anticoagulants in Vascular Surgery	232
Thromboangiitis Obliterans	233
Clinical Diagnosis	233
Treatment	233
Frostbite	233
Use of Anticoagulant Therapy	233
Temporal Ateritis	234

Clinical Diagnosis	234
Venous Disease	234
Thrombophlebitis	234
Rationale of Therapy	234
Clinical Diagnosis	234
Treatment with Anticoagulants	235
Dangers of Misdiagnosis	235
Results of Anticoagulant Treatment	236
Thromboembolism	237
Postoperative	237
Antipartum	238
Complications of Anticoagulant Therapy	238
 12. THE USE OF ANTICOAGULANTS IN VARIOUS SPECIALTIES	244
General and Orthopedic Surgery	244
Postoperative Thromboembolism	244
Thrombophlebitis	245
Etiology	245
Clinical Diagnosis	245
Therapy of Thrombophlebitis	246
Results of Treatment	246
Emergency Surgery	247
Small Bowel Infarction	248
Cardiac and Vascular Surgery	248
Obstetrics and Gynecology	249
Etiology	249
Clinical Diagnosis	249
Treatment with Anticoagulants	249
Heparin	249
Coumarins or Phenindiones	250
Lactation	250
Urology	250
Dentistry	250
Otolaryngology. <i>By David A. Dolowitz</i>	251
Anti-inflammatory Action of Heparin	251
Connective Tissue	251
Clinical Applications of Anticoagulants	253
Lateral Sinus Thrombosis	253
Pathologic Physiology	253
Treatment	254
Weeping Eczema of the External Ears	254
Sudden Deafness, Meniere's Disease, and Bell's Palsy	255
Pathologic Physiology	255
Tinnitus	255
Cavernous Sinus Thrombosis	255
Infectious Inflammation of the Pharynx	256
Allergy	256
Ophthalmology. <i>By Stephen S. Seiff</i>	257

Retinal Venous Occlusion	257
Clinical Findings	257
Occlusion of the Central Retinal Vein	257
Etiology	257
Treatment with Anticoagulants	258
Clinical Course	258
Occlusion of Retinal Venous Branches	260
Retinal Arterial Occlusion	260
Etiology	260
Senile Macular Degeneration	261
Disciform Degeneration	261
Macular Edemas	262
Retinitis Pigmentosa	262
Diabetic Retinopathy	262
Histology	263
Rationale of Therapy with Anticoagulants	263
Retrolental Fibroplasia	264
Infrequent, Non-anticoagulant Uses of Heparin in Ophthalmology	265
Bilateral, Transient Blurring of Vision	265
Amaurosis Fugax	266
The Management of Ocular Surgical Disorders in Patients Receiving Anticoagulant Therapy	266
Dermatology	267
Radiology	267
Psychiatry	268
Pediatrics	268
Cancer	268
 13. COMPLICATIONS OF TREATMENT	 276
Hemorrhage	276
Short-term Therapy	276
Long-term Therapy	278
Mechanisms of Bleeding	280
Various Types of Hemorrhage	281
From Either Type of Anticoagulant	281
From Heparin	281
From Oral Anticoagulants	283
Side Effects of Anticoagulants	290
Heparin	290
Anaphylactic Reactions	290
Dysesthesia Pedis	290
Alopecia	291
Impotence	291
Macroglobulinemia	291
Hypoadosteronism	291
Osteoporosis	291
Oral Anticoagulants	292

Coumarins	292
Gastrointestinal Upsets	292
Skin Reactions	292
Urticarial Reactions	292
Purple Toes	292
Cystitis	294
Toxic Lesions of the Small Vessels	294
Skin Necrosis or Necrosing Cutaneous Hemorrhages	295
Toxic Lymphoid Tissue Reactions	296
Increased Sensitivity to Vascular Trauma	296
Renal Effects	296
Indandiones and Phenindiones	296
Discoloration of the Urine	296
Pyrexia	296
Skin Disorders	297
Hepatitis	297
Renopathy	297
Hematologic Effects	297
Purple Toes	297
“Rheumatoid Arthritis-like” Swelling	298

Clinical
ANTICOAGULANT
THERAPY

I. MYRON VIGRAN

CLINICAL

ANTICOAGULANT THERAPY

I. MYRON VIGRAN, M.D., M.S. (in Med.)

Fellow, American College of Physicians, American College of Cardiology, American College of Chest Physicians and International College of Angiology; Associate Attending Physician, Cedars of Lebanon Hospital; Associate Physician, Mount Sinai Hospital, Los Angeles, California; Director, Research Foundation for Circulatory Disease, Beverly Hills, California; Formerly Instructor in Medicine, University of Southern California.

with

Collaborating Authors

and

A Foreword by Irving S. Wright

63 Illustrations One in Colour

LONDON

HENRY KIMPTON

134 GREAT PORTLAND STREET, W.1.

1965

Copyright © 1965 by Lea & Febiger
All Rights Reserved

Printed in the United States of America

原书缺页

原书缺页