
Contents

Preface	IX
1 <i>Sodium Cellulose Phosphate for the Treatment of Absorptive Hypercalciuria</i>	1
Historical	1
Chemistry of Calcibind	1
Pathophysiology of Absorptive Hypercalciuria	2
Mechanism of Calcibind Action	4
Physiological Action of Calcibind	4
Physicochemical Action of Calcibind	8
Indications and Treatment Guidelines	9
Response to Therapy	10
Studies at NIH	10
Studies at Dallas	11
Studies by Other Workers	11
Hazards of Calcibind Therapy	12
Effect on Parathyroid Function and Bone Metabolism	12
Effect on Magnesium and Oxalate Metabolism	13
Effect of Calcibind on Trace Metals and Creatinine Clearance	13
Nonspecific Side Effects	13
References	14
Bruce Ettinger	
2 <i>Allopurinol for the Treatment of Uric Acid and Calcium Calculi</i> ..	16
Pharmacology of Allopurinol	16
Pathophysiology of Urate Lithiasis	20
Treatment of Uric Acid Lithiasis	22
Changing Diet and Fluid Intake	22
Alkali Therapy	22
Allopurinol Therapy for Uric Acid Lithiasis	23
Hyperuricosuric Calcium Oxalate Lithiasis	25
Epidemiology	25
Allopurinol Treatment of Calcium Oxalate Lithiasis	26
Mechanisms of Allopurinol's Protection against Calcium Oxalate Lithiasis	28

Hazards of Allopurinol Therapy	29
Conclusions	32
References	33
 3 <i>Potassium Citrate for the Treatment of Calcium and Uric Acid Nephrolithiasis</i>	37
Historical Considerations	37
Pathophysiology	37
Uric Acid Nephrolithiasis	38
Hypocitraturic Calcium Nephrolithiasis	38
Mechanism of Action of Potassium Citrate	40
Physiological Action of Potassium Citrate	40
Physicochemical Action of Potassium Citrate	41
Uniqueness of Potassium Citrate from Other Alkali	42
Treatment Guidelines	43
Hypocitraturic Calcium Nephrolithiasis	43
Gouty Diathesis	45
Response to Therapy	45
Hazards	45
Endoscopic Examination of Upper Gastrointestinal Mucosa	46
Adverse Reactions	47
References	47
 4 <i>Alpha-Mercaptopropionylglycine for the Prevention of Cystinuria</i> .	49
Historical Considerations	49
Pathophysiology	49
Cystinuria	49
Pathogenetic Role of Cystinuria in Stone Formation	50
Mechanism of Action of Thiola	50
Chemistry	50
Pharmacokinetics and Bioavailability	50
Dose-Response Relationship	51
Effect of Thiola on Renal Excretion of Other Dibasic Amino Acids . . .	52
Effect of Short-Term Thiola Withdrawal	52
Long-Term Action of Thiola on Cystine Excretion	53
Physicochemical Action of Thiola	53
Treatment Guidelines	54
Specific Therapies Other Than Thiola	54
Alpha-Mercaptopropionylglycine	56
Response to Thiola Therapy	57
Remien et al.	57
Hautmann	57
Miano et al.	57
Linari et al.	58
Multiclinic Trial in the United States	58

Hazards of Thiola Therapy	58
Multiclinic Trial in the United States	58
Other Reports	59
References	61
 5 <i>Thiazide for the Treatment of Hypercalciuric Nephrolithiasis</i>	63
Historical Considerations	63
Pathophysiology of Renal Hypercalciuria	63
Mechanism of Action of Thiazide	66
Physiological Action of Thiazide	66
Physicochemical Action of Thiazide	68
Indications and Treatment Guidelines	70
Indications	70
Treatment Guidelines	70
Response to Thiazide Therapy	71
Effectiveness of Combined Thiazide and Potassium Citrate	71
Hazards of Thiazide Therapy	71
References	73
 6 <i>Calcium Citrate for the Prevention of Postmenopausal Osteoporosis</i>	76
Historical Considerations	76
Pathophysiology of Postmenopausal Osteoporosis	77
Classification of Osteoporosis	77
Pathogenesis of Postmenopausal Osteoporosis	78
Mechanism of Action of Calcium Supplementation	81
Physiological Action	81
Evidence that Calcium Citrate is an Optimum Calcium Supplement	81
Clinical Responses to Calcium Supplementation	88
Review of Literature	89
Hazards of Calcium Citrate Supplementation	90
Hypercalcemia	90
Renal Stones	91
Aluminum Toxicity	92
References	92
 Clare D. Edman	
7 <i>Estrogens for Prevention of Postmenopausal Osteoporosis</i>	96
Pathophysiology	96
Mechanism of Action	99
Guidelines to Therapy	100
Type of Estrogen and Route of Administration	101
Minimally Effective Dose	101
Duration of Use	102

Estrogens and Calcium	102
Estrogen and Progestin Therapy	103
Uterine Bleeding	104
References	105
Stanley Wallach	
8 <i>Calcitonin Treatment of Osteoporosis</i>	108
Historical Considerations	108
Calcitonin Peptides	109
Actions of Calcitonin	109
Calcitonin in Osteoporosis	111
Experimental Results	112
Practical Aspects	114
Side Effects	115
Bone Mass Measurements	116
Coherence and Intermittent Programs Using Calcitonin	117
Calcitonin in Secondary Osteoporosis	119
Calcitonin in Osteoporosis Prevention	120
References	121
9 <i>Diphosphonate in the Management of Stone and Bone Disease</i> . .	125
Chemistry	125
Metabolism	125
Physicochemistry	126
Physiological Effects on the Skeleton	127
Inhibition of Bone Mineralization	127
Inhibition of Bone Resorption	127
Varying Skeletal Effects of Diphosphonates	128
Renal Effects of Diphosphonates	129
Intestinal Effects of Diphosphonates	130
Clinical Uses of Diphosphonates	130
Disorders of High Bone Resorption	130
Heterotopic Calcification	133
Miscellaneous Conditions	134
References	135
Subject Index	139