Electrolytes

and Cardiovascular Diseases

Physiology - Pathology - Therapy

Vol. 1

Fundamental Aspects

Edited by EÖRS BAJUSZ, University of Montreal (Canada)

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Table of Contents

Vol. I : Fundamental Aspects

Bajusz, E. : Editorial Foreword IX

Introduction

Sampson, J. J.: The Electrolytes and Cardiovascular Diseases 1
Experimental Studies on the Importance of Electrolytes in Cardiovascular Physiology and Pathology

A. Cardiac Metabolism and Function

Aikawa, J. K.: The Role of Magnesium in Biologic Processes. A Review of Recent Developments 9
Manitius, A.: Some Physiological Effects of Magnesium Deficiency 28
Paes de Carvalho, A.: Role of Potassium Ions in the Electrophysiological Behavior of Mammalian Cardiac Muscle 55
Read, W. O. and Welty, J. D.: Taurine as a Regulator of Cell Potassium in the Heart 70
Wat an abe, Y.: Antagonism and Synergism of Potassium and Antiarrhythmic Agents 86
Lamarche, M. and Royer, R.: Aspartic Acid Salts and the Cardiovascular Diseases 104
Libretti, .: Orthogonal Electrocardiographic Pattern of Hypopotas-semia 123

B. Necrotizing Cardiomyopathies

Selye, H. and Gabbiani, G.: The Role of Electrolytes in the Pathogenesis of Experimental Cardiopathies without Vascular Involvement. ... 135
Sós, J.: An Investigation into the Nutritional Factors of Experimental Cardiopathy 161
Rona, G.; Kahn, D. S. and Chappel, C. I.: The Effect of Electrolytes on Experimental Infarct-Like Myocardial Necrosis 181
Heggtveit, H. A.: The Cardiomyopathy of Magnesium-Deficiency 204
Nádasdi, M.: Electrolytes, Kidney and Circulation 221
Vitale, J. J.; Velez, H. and Guzman, C.: The Effect of Hypothermia on the ECG of Magnesium Deficient Monkeys 237

VI Table of Contents

Lehr, D.: The Role of Certain Electrolytes and Hormones in Disseminated Myocardial Necrosis 248
Bajusz, E.: The Terminal Electrolyte-Shift Mechanism in Heart Muscle; its Significance in the Pathogenesis and Prevention of Necrotizing Cardiomyopathies 274
C. Vascular Function and Hypertension

Friedman, S. M. and Friedman, C. L.: The Emerging Role of Sodium and Potassium in the Regulation of Vascular Smooth Muscle Tension 323
Bohr, D. F.: Individualities among Vascular Smooth Muscles 342
Mallov, S.: Effect of Hypertension and Sodium Chloride on the Reactivity of Rat Aortic Strips in vitro 356

Subject Index 401

Vol. 2 : Clinical Aspects

(separate volume)

Clinical Studies on the Pathogenetic and Therapeutic Role of Electrolytes in Cardiovascular Diseases

A. Physiologic and Pathologic Considerations

Lyon, A. F.: Primary Myocardial Disease in the Adult. A Clinical Analysis 1
Berger, H.: Potassium Depletion in Heart Disease 17
Köhler, J. A.: The Importance of Recent Biochemical-Electrophysiological Discoveries - Potassium Ion and Myocardium ' extra situ' - for Clinical Electrocardiograph 61
Salmanovich, V. S.: Ionic Nature of the Shift of the S-T segment in Myocardial Ischemia and Infarction 100
Lenzi, F.: Cationic Gradients in Electrocardiography. Adrenals and Congestive Heart Failure 123
Losse, H.; Wehmeyer, H. and Zumkley, H.: The Behaviour of the Intracellular Electrolytes in Arterial Hypertension (Investigations on Erythrocytes) 174

Table of Contents VII
B. Therapeutic and Preventive Considerations

Sodi-Pallares, D.; Bisteni, .; Medrano, G. .; Micheli, A. de; Ponce de León, J.; Calva, E.; Fishleder, B. L.; Testelli, M. R. and Miller, B. L. : The Polar izing Tf eatment in Cardiovascular Conditions. Experimental Basis and Clinical Applications 198
Laborit, H. : New Physiological Concepts of Cardiovascular Functions. Therapeutic Consequences 239
Larcan, .: Pathophysiologica l Basis and Practical Application of a 'Metabolic'Therapy of Myocardial Infarction 277
Michel, D. : The Behaviour of Electrolytes under Cardiac Glycosides and Glycoside Intoxication 302
Kanter, R. : Compensation of Hypoxia in the Human Heart Muscle by means of Potassium Magnesium Aspartate 324
Zimmerman, . B.: Potassium and the Atrioventricular Node 329
Flear, C. T. G.: Disturbance of Volume and Composition of Body Fluids in Congestive Heart Failure 357
Pillen, D. : Experiences with Potassium Magnesium Aspartate Therapy 386
Köhler, U. : Modern Therapy of Angina Pectoris and Prevention of Myocardial Infarction by means of Transcardiac Iontophoresis 395
Kucher, E.: Iontophoretic Cardiac Therapy with Magnesium and Potassium Chloride 407
Kenter, . and Falkenhahn, A.: Management of Myocardial Infarction with Potassium Magnesium Aspartate 420

Subject Index 430

Editorial Foreword

Interest in the role of electrolytes in cardiovascular diseases has been stimulated markedly in recent years by experimental and clinical findings that suggest that dietary electrolytes may be implicated in the genesis of atherosclerosis, hypertensive conditions, degenerative myocardial processes and even the so-called 'coronary heart disease'. The recognition that dietary factors may influence a number of entities in cardiovascular pathology that had largely been considered an inevitable consequence of aging is a real challenge to medical science.
The literature on electrolyte metabolism, including the relationships of anion-cation interactions to the normal function of heart and blood vessels as well as to diseases of the cardiovascular system, is already so extensive that it is difficult, if not almost impossible, for the practicing physician to evaluate this mass of information. The purpose of this symposium volume is to review the current status of knowledge in this field, to serve as a guidance to the vast amount of scattered literature data by indicating major points in progress, to bring controversial issues to the fore, and to suggest promising areas for future clinical and experimental investigations. The Contributors to the present volume have brought into focus many fundamental data that will assist all those interested in arriving at a better understanding of the apparently extremely complex processes that may lead to the development of necrotizing cardiomyopathies and many other maladies of the heart and coronary vessels. I sincerely believe that such a collection of fundamental and classical data, clinical observations, and hypotheses on newly discovered biological phenomena in which electrolytes seem to play an essential role will help the physician to prepare himself beforehand to meet the problems presented by his patients and to plan therapeutic regimens that may well be effective. Although many among the basic problems involved in the relationship of electrolytes and cardiovascular diseases are far from being solved as yet, observations to date can be weighed and evaluated carefully, sane clinical approaches to prevention and/or therapy developed and the first successful attempts, disclosed by this book, put into wider practical application.

I am especially proud to be able to include in this volume the introductory articles written by Dr. John J. Sampson of San Francisco, President of the American Heart Association and pioneer in clinical investigations that established the causal role of potassium deficiency in functional disorders of the heart muscle, and by Dr. Hans Selye, Professor and Director of the Institute of Experimental Medicine and Surgery at the University of Montreal, with whom I had the pleasure for several stimulating years of not only working on experimental investigations into problems related to the participation of electrolytes in the pathogenesis and prevention of necrotizing cardiomyopathies, but also of discussing and pondering during innumerable hours the possible explanations of unexpected observations. No less appreciated for their contributions are all the distinguished Scientists who participated
in the writing of this book, thereby bringing their valuable experience and views together in order to achieve a more rapid advance in this important field of cardiology and internal and preventive medicine as well.

As editor, I adopted the policy that I should not neglect to invite contributions from investigators whose scientific views do not coincide with mine or even with the generally accepted trend of thought of some eminent authorities, and that I should not hesitate to include, moreover, reports on observations that, although repeatedly confirmed, lack any easily understandable explanation. I expect to be criticized, furthermore, for the errors and omissions that are bound to occur in such an extensive one-man job as the organization and editing of a symposium volume like this; and even more so for my editorial liberalism in that I often encouraged the contributors to present not merely plain facts but also to freely express views and to formulate working hypotheses. This rather personal editorial policy was applied here because of the outstanding quality of the work of Contributors, and it is an inherent factor in my crusade for new ideas; on these grounds, I hope it will be excused. I sincerely believe that the resulting impetus to studies on the role of electrolytes in the genesis, treatment and prevention of cardiovascular diseases will prove worthwhile, regardless of whether or not all the current theories and/or interpretations of findings prove to be correct; the existence of causal relationships in these respects is now beyond any doubt. It is true that much still remains to be learned and it is anticipated that, within the next few years, intensified basic and clinical research will assist in solving at least some of the problems raised in this symposium volume. Last but not least, I wish to express my sincere appreciation to the Directors of the Trommsdorff Chemische Fabriken of Aachen (West Germany) for providing the funds that helped defray the high costs entailed in the publication of such an international volume, in which several papers had to be translated from the authors' original languages into English in order to achieve a one-language publication, and also to Mrs. Bridget Sacra for her valuable assistance in my editorial tasks.

University of Montreal, 1964 Eörs Bajusz