Endothelial Cell Function in Diabetic Microangiopathy: Problems in Methodology and Clinical Aspects

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F. Belfiore, Catania

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Endothelial Cell Function in Diabetic Microangiopathy: Problems in Methodology and Clinical Aspects

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Contents

Preface................................................................. VII

Molecular Exchanges Across the Vessel Wall and Capillary Hyperpermeability in Diabetes

Frøkjær-Jensen, J. (Copenhagen): Anatomical Correlates of Capillary Permeability 28
Williamson, J.R. (St. Louis, Mo.); Pugliese, G. (Rome); Tilton, R.G.; Chang, K.; Kilo, Ch. (St. Louis, Mo.): In vivo Vascular Permeability Changes in Diabetes: Experimental Animals................................................. 43

Morphologic and Metabolic Aspects of Endothelium in Health and in Diabetes


Endothelial Cell Replication and Its Derangements in Diabetes

Lorenzi, M.; Caglierio, E.; Roy, S.; Roth, T. (Boston, Mass.): The Diabetic Milieu and Endothelial Cell Replication.................................................. 64
Interactions of Glucose, Insulin and IGF with Vascular Endothelium

Pillion, D.J.; Meezan, E. (Birmingham, Ala.): Microvascular Receptors for Insulin and Insulin-Like Growth Factors................................................................. 75

Contents

King, G.L. (Boston, Mass.); Hachiya, H.L. (Ann Arbor, Mich.); Kwok, Ch. F. (Taiwan); Lee, T.-S. (Boston, Mass.): Characterization of the Effects of Insulin, IGF and Hyperglycemia on the Metabolism and Functions of Vascular Endothelial Cells................................................................. 86
Bar, R.S.; Boes, M.; Dake, B.L.; Henley, S.A.; Booth, B.A. (Iowa City, Iowa): Receptor-Mediated Transport of Circulating Insulin and IGF by Vascular Endothelium ............................................................................ 97

Interactions between Endothelium and Other Vascular Structures and Their Abnormalities in Diabetes

Campbell, J.H. (Prahran); Horrigan, S. (Prahran/Parkville); Merrilees, M. (Auckland); Campbell, G.R. (Parkville): Endothelial-Smooth Muscle Interactions. Possible Role in the Pathogenesis of Atherosclerosis........................................... 108
Hill, M.A. (College Station, Tex./Parkville); Meininger, G.A. (College Station, Tex.); Larkins, R.G. (Parkville): Alterations in Microvascular Reactivity in Experimental Diabetes Mellitus: Contribution of the Endothelium?.............................. 118

Interactions between Endothelium and Blood Components and Their Abnormalities in Diabetes

Bloom, A.L. (Cardiff): The Role of the Endothelium in the Regulation of Haemostasis.............................................................. 139
Porta, M. (Turin/Sassari); La Selva, M.; Molinatti, P.; Molinatti, G.M. (Turin): In vivo Studies of von Willebrand Factor and Other Endothelial Molecules in Diabetic Microangiopathy.......................................................... 156
Preface

The endothelium, long regarded as a simple, inactive barrier between blood and the surrounding tissues, is now recognized as an extremely active system which plays a major role in an array of important metabolic processes and physiological functions. These include, among others, regulation of coagulative mechanisms, clearance of circulating lipids, regulation of the renin-angiotensin system, and participation in the immune response.

The development of appropriate methods for studying the endothelium, especially the progress in the methods of in vitro endothelial cell culture, has greatly expanded our knowledge of the many functions of endothelium both in the normal state and in pathologic processes. It is now well established that endothelial lesions are involved in the pathogenetic mechanisms of such important clinical conditions as atherosclerosis and diabetic microangiopathy. Given this background, we decided to develop a form which would allow experts in endothelial pathology to exchange opinions and ideas, analyze and evaluate current methods for studying endothelial function, and to outline possibilities of future development. This led to the organization of the International Diabetes Federation Congress ‘Satellite Symposium’ on Endothelial Cell Function in Diabetic Microangiopathy. Problems in Methodology and Clinical Aspects, which was held in Melbourne, November 27-29, 1988. At this meeting, scientists from various parts of the world met to discuss in depth the many facets of endothelium research.

This volume is the edited version of the presentations delivered at the Melbourne Symposium. It reflects the rich scientific contents of this meeting and is one of the first books devoted both to the methods and results of research on the endothelial system. The main topics covered by the
various chapters include the morphology, metabolism and physiology of capillaries and endothelium both in the normal state and in diabetes, the growth, replication and reactivity of endothelial cells, the changes in capillary permeability, the relationships between endothelial alterations and coagulation factors, and the regulation of angiogenesis and neovascularization. By providing easy access to the most advanced views in this rapidly expanding area of investigation, we hope that this book will be useful to both scientists and physicians interested in the physiology and pathology of the endothelium.

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