

135014

The Diabetic Kidney

Edited by

Pedro Cortes, MD

Carl Erik Mogensen, MD

 HUMANA PRESS

CONTENTS

Dedication	v
Series Editor's Introduction	vii
Preface	ix
Contributors	xv

PART I: BASIC PATHOPHYSIOLOGY AND BIOCHEMISTRY OF DIABETIC NEPHROPATHY

A. Pathophysiology

1. Angiotensin II and Its Receptors in the Pathogenesis
of Diabetic Nephropathy 3
David J. Leehey, Ashok K. Singh, and Rekha Singh
2. Altered Renal Microvascular Function in Early Diabetes 23
Pamela K. Carmines, Joseph P. Bast, and Naohito Ishii

B. Interstitial Disease

3. Proteinuria and Interstitial Fibrogenesis
in Diabetic Nephropathy 39
Raimund Hirschberg

C. Podocytes

4. Podocytes and Diabetic Nephropathy 59
*George Jerums, Sianna Panagiotopoulos,
and Richard MacIsaac,*

D. Altered Metabolic Pathways

5. Altered Glucose Transport and Its Metabolic Effects
in Glomerular Cells 81
Charles W. Heilig
6. mRNA Translation in Diabetic Nephropathy 97
*Balakuntalam S. Kasinath, Myung Ja Lee,
Denis Feliers, and Nahum Sonenberg*
7. The Hexosamine Biosynthesis Pathway:
Contribution to the Pathogenesis of Diabetic Nephropathy ... 117
*I. George Fantus, Howard J. Goldberg,
Catharine I. Whiteside, and Delilah Topic*

E. Nonenzymatic Glycosylation

8. Glycation: *Receptor for Advanced Glycation
Endproducts and Diabetic Nephropathy* 137
Vivette D'Agati and Ann Marie Schmidt

F. Oxidative Stress

9. Oxidative and Glycooxidative Stress
in Diabetic Nephropathy 151
Frederick R. DeRubertis and Patricia A. Craven

G. Growth Factors

10. Connective Tissue Growth Factor
in the Pathogenesis of Diabetic Nephropathy:
A Target for Therapeutic Intervention 175
Bruce L. Riser, Alessia Fornoni, and Sujatha Karoor
11. Vascular Endothelial Growth Factor as a Determinant
of Diabetic Nephropathy 187
Geoffrey Boner and Mark E. Cooper
12. Transforming Growth Factor- β Signal Transduction
in the Pathogenesis of Diabetic Nephropathy:
*Identifying Molecular Targets
for Therapeutic Intervention* 201
Sheldon Chen and Fuad N. Ziyadeh

H. New Approaches to the Study of Diabetic Nephropathy

13. Hepatocyte Growth Factor: *Physiological and Therapeutic
Ligand to Attenuate Diabetic Nephropathy* 225
Shinya Mizuno and Toshikazu Nakamura
14. Proteomics in the Investigation of Diabetic Nephropathy 255
Visith Thongboonkerd
15. Gene Expression Profiling in the Investigation
of Diabetic Nephropathy 277
Katalin Susztak, Erwin Bottinger, and Kumar Sharma
16. PPAR- γ Ligands and Diabetic Nephropathy 289
Keiji Isshiki, Daisuke Koya, and Masakazu Haneda
17. α -Endosulfine in Diabetic Nephropathy 305
Jerry Yee and Balazs Szamosfalvi
18. The Prospect of a Novel Therapeutic, Bone Morphogenetic
Protein-7, in Diabetic Nephropathy 315
*Keith A. Hruska, Laura DePetris, Tingting Li,
Song Wang, Theresa Geurs, Frank Strebeck,
Qing Chen, and Helen Liapis*

PART II: CLINICAL ASPECTS OF DIABETIC NEPHROPATHY**A. Genetics and Risks**

19. Genetic Determinants of Diabetic Nephropathy
in Type 2 Diabetes 329
Grzegorz Placha and Andrzej S. Krolewski
20. Major Risk Indicators for Diabetic Kidney Disease 351
Katherine R. Tuttle

B. Histopathology and Special Populations

21. The Structure of Human Diabetic Nephropathy 361
Michael Mauer and Behzad Najafian
22. Diabetic Kidney Disease in Transitional
and Disadvantaged Populations 375
E. Jennifer Weil and Robert G. Nelson

C. Diagnosis and Treatment

23. Screening and Treatment of Early Diabetic Renal Disease
in Type 1 and Type 2 Diabetes 403
Ellie Chuang and Mark E. Molitch
24. Treatment in Advanced Renal Disease in Type 1
and Type 2 Diabetes 419
Eberhard Ritz and Gunter Wolf
25. Diabetic and Renal Disease:
*ACE Inhibitors and/or Angiotensin Receptor Blockers:
Does It Matter?* 437
Carl Erik Mogensen and Niels Holmark Andersen
26. Management of Diabetic End-Stage Renal Disease
With Dialysis 453
Ploumis S. Passadakis and Dimitrios G. Oreopoulos

D. Related Abnormalities

27. Diabetic Retinopathy and Nephropathy 473
Ronald Klein
28. Hypertension and Cardiovascular Disease 499
*Adam Whaley-Connell, Kurt Sowers,
and James R. Sowers*
29. Endothelial Dysfunction and Diabetic Nephropathy 515
*Coen D. A. Stehouwer, Maya S. P. Huijberts,
Alfons J. H. M. Houben, and Nicolaas C. Schaper*
30. Anemia and Diabetic Nephropathy 527
*George Jerums, Richard MacIsaac,
Sianna Panagiotopoulos, and Merlin Thomas*