
Contents

List of Contributors, viii

Preface, xv

List of Abbreviations, xvi

Part 1 Diabetes in its Historical and Social Context

- 1 The History of Diabetes Mellitus, 3
Robert B. Tattersall and David R. Matthews
- 2 Classification and Diagnosis of Diabetes, 22
Ambady Ramachandran, Chamukuttan Snehalatha, Arun Raghavan, and Arun Nanditha
- 3 The Global Burden of Diabetes, 28
Jessica L. Harding, Mary Beth Weber, and Jonathan E. Shaw
- 4 Epidemiology of Type 1 Diabetes, 41
Lars C. Stene and Jaakko Tuomilehto
- 5 Epidemiology of Type 2 Diabetes, 55
Ronald C.W. Ma and Peter C.Y. Tong

Part 2 Normal Physiology

- 6 Overview of Glucose Metabolism, 77
Richard I.G. Holt
- 7 Islet Function and Insulin Secretion, 84
Peter M. Jones and Shanta J. Persaud
- 8 Glucagon in Islet and Metabolic Regulation, 99
Jonathan E. Campbell and David A. D'Alessio
- 9 Mechanism of Insulin Action, 111
Morris F. White
- 10 Central Control of Glucose Homeostasis, 128
Kimberly M. Alonge, Kendra L. Francis, Nicole E. Richardson, and Michael W. Schwartz
- 11 Control of Body Weight: How and Why Do We Gain Weight Easier Than We Lose It?, 142
Janine Makaronidis and Rachel L. Batterham

Part 3 Pathogenesis of Diabetes

- 12 The Genetics of Diabetes, 157
Rashmi B. Prasad
- 13 Genetics of Obesity, 197
I. Sadaf Farooqi
- 14 Autoimmune Type 1 Diabetes, 203
Omar Akel and Åke Lernmark
- 15 Other Disorders with Type 1 Diabetes and Atypical Phenotypes, 216
Alice P.S. Kong, Elaine Y.K. Chow, Andrea O.Y. Luk, and Juliana C.N. Chan
- 16 Abnormalities of Insulin Secretion and β -Cell Defects in Type 2 Diabetes, 225
Stefano Del Prato, Cristina Bianchi, and Giuseppe Daniele
- 17 Insulin Resistance in Type 2 Diabetes, 238
Michael Roden, Kitt Falk Petersen, and Gerald I. Shulman
- 18 Obesity and Diabetes, 250
Nick Finer
- 19 The Microbiome and Diabetes, 261
Amanda J. Cox, Nicholas P. West, and Allan W. Cripps

Part 4 Other Types of Diabetes

- 20 Monogenic Causes of Diabetes, 275
Brittany L. Resnick, Maggie H. Shepherd, and Andrew T. Hattersley
- 21 Drug-Induced Diabetes, 295
Charles D. Ponte and Devra K. Dang
- 22 Diabetes in Hypersecreting Endocrine Disorders, 304
Allan A. Vaag, Neil A. Hanley, and Caroline M. Kistorp
- 23 Pancreatic Disease and Diabetes, 319
Ranjit Unnikrishnan and Viswanathan Mohan
- 24 Clinical Presentations of Diabetes, 330
Ee Lin Lim and Roy Taylor

Part 5 Managing the Person with Diabetes

- 25 The Aims of Diabetes Care, 343
Katharine D. Barnard-Kelly and Richard I.G. Holt
- 26 Education to Empower the Person with Diabetes, 354
Ingrid Willaing and Michael Vallis
- 27 Dietary Management of Diabetes, 368
Nicola Guess
- 28 Physical Activities and Diabetes, 382
Emma J. Cockcroft and Robert C. Andrews
- 29 Monitoring Diabetes, 404
Emma English
- 30 Biomarkers and Precision Medicine in Diabetes, 414
Sok Cin Tye, Michele Provenzano, and Hiddo J.L. Heerspink

Part 6 Treatment of Diabetes

- 31 Insulin and Insulin Treatment, 431
Roman Vangoitsenhoven, Parth Narendran, and Chantal Mathieu
- 32 New Technologies for Glucose Monitoring, 444
Thomas Danne and Olga Kordonouri
- 33 New Technologies for Insulin Administration, 459
Hannah Forde and Pratik Choudhary
- 34 Whole Pancreas and Islet Cell Transplantation, 473
Braulio A. Marfil-Garza, Peter A. Senior, and A.M. James Shapiro
- 35 Oral Glucose-Lowering Agents, 492
Clifford J. Bailey and Andrew J. Krentz
- 36 Non-insulin Parenteral Therapies, 520
Tina Vilsbøll, Mikkel Christensen, Andreas Andersen, and Filip K. Knop
- 37 How to Use Type 2 Diabetes Treatments in Clinical Practice, 534
Thomas Karagiannis, Aris Liakos, and Apostolos Tsapas
- 38 Weight Management and Metabolic Surgery, 551
Alexis Sudlow, Dimitri J. Pournaras, and Carel W. le Roux
- 39 In-Hospital Treatment and Surgery in People with Diabetes, 559
Ketan Dhatariya, Philip Newland-Jones, and Mayank Patel
- 40 Hypoglycaemia in Diabetes, 579
Ahmed Iqbal, Elaine Y.K. Chow, Timothy W. Jones, and Simon R. Heller
- 41 Acute Metabolic Complications of Diabetes: Diabetic Ketoacidosis and the Hyperosmolar Hyperglycaemic State in Adults, 602
Philip Newland-Jones, Mayank Patel, and Ketan Dhatariya

Part 7 Microvascular Complications in Diabetes

- 42 Pathogenesis of Microvascular Complications, 615
Allan Flyvbjerg
- 43 Diabetic Retinopathy, 629
Toke Bek

- 44 Diabetic Nephropathy, 640
Peter Rossing and Allan Flyvbjerg
- 45 Diabetic Neuropathy, 655
Shazli Azmi, Uazman Alam, and Rayaz A. Malik

Part 8 Macrovascular Complications in Diabetes

- 46 Pathogenesis of Macrovascular Complications in Diabetes, 681
Jakob A. Østergaard, Tomasz J. Block, Sophia Dahm, Waheed Khan, and Karin A.M. Jandeleit-Dahm
- 47 Hypertension and Diabetes, 700
Peter M. Nilsson
- 48 Dyslipidaemia and Diabetes, 713
Adie Viljoen, Ahmed Handhle, and Anthony S. Wierzbicki
- 49 Ischaemic Heart Disease in Diabetes, 724
Michael Lehrke and Nikolaus Marx
- 50 Heart Failure and Diabetes, 732
Ambarish Pandey, Kershaw V. Patel, and Subodh Verma
- 51 Cerebrovascular Disease and Diabetes, 745
Colum F. Amory, Jesse Weinberger, and Travis S. Smith
- 52 Peripheral Vascular Disease, 755
Henrik H. Sillesen

Part 9 Other Complications of Diabetes

- 53 Foot Problems in People with Diabetes, 771
Frank L. Bowling, Keeley J. Foley, and Andrew J.M. Boulton
- 54 Sexual Function in Men and Women with Diabetes, 780
Kirsty Winkley, Camilla Kristensen, Jackie Fosbury, and David Price
- 55 Gastrointestinal Manifestations of Diabetes, 796
Michael Camilleri and Adil E. Bharucha
- 56 Diabetes and Oral Health, 810
Palle Holmstrup, Christian Damgaard, and Allan Flyvbjerg
- 57 Diabetes and Non-alcoholic Fatty Liver Disease, 820
Alessandro Mantovani, Giovanni Targher, and Christopher D. Byrne
- 58 The Skin in Diabetes, 838
Paul Devakar Yesudian
- 59 Bone and Rheumatic Disorders in Diabetes, 853
Andrew Grey and Nicola Dalbeth
- 60 Diabetes and Cancer: Risk, Outcomes, and Clinical Implications, 867
Ellena Badrick, Emily J. Gallagher, and Andrew G. Renehan
- 61 Diabetes and Infections, 878
Andrea O.Y. Luk and Clive S. Cockram
- 62 Sleep and Diabetes, 897
Sonya Deschênes, Amy McInerney, and Norbert Schmitz

Part 10 Psychosocial Aspects of Diabetes

- 63 Psychosocial and Behavioural Aspects of Diabetes, 907
Frans Pouwer and Jane Speight
- 64 Role of Cognitive Function in Managing People with Diabetes, 922
Tamsin Santos, Chelsea Baird, Sally Eastwood, Kerrie Shiell, and Joseph E. Ibrahim
- 65 Mental Disorders and Diabetes, 933
Najma Siddiqi, Marietta Stadler, and Richard I.G. Holt
- 66 Social Aspects of Diabetes, 956
Brian M. Frier and Mark W.J. Strachan
- 67 Social Determinants of Diabetes, 973
Keri F. Kirk, Gerald McKinley, Briana Mezuk, and Erica Spears

Part 11 Diabetes in Special Groups

- 68 Ethnic, Cultural, and Religious Aspects to the Management of Diabetes, 987
Wasim Hanif, Sarah N. Ali, and Vinod Patel
- 69 Diabetes in Childhood, 999
Jennifer M. Ikle, Ananta Addala, and David M. Maahs
- 70 Adolescence and Emerging Adulthood: Diabetes in Transition, 1019
Charlotte W. Chen and Lori M.B. Laffel
- 71 Diabetes in Pregnancy, 1034
David R. McCance and Laura Cassidy

- 72 Diabetes in Old Age, 1072
Ahmed H. Abdelhafiz and Alan J. Sinclair
- 73 Diabetes at the End of Life, 1085
Trisha Dunning and June James

Part 12 Delivery and Organization of Diabetes Care

- 74 The Role of the Multidisciplinary Team across Primary and Secondary Care, 1097
Samuel Seidu and Kamlesh Khunti
- 75 Models of Diabetes Care in Low- and Middle-Income Countries, 1107
David Beran, Sigiriya Aebischer Perone, and Maria Lazo-Porras

Part 13 Future Directions

- 76 Immunotherapies for Type 1 Diabetes, 1125
Jesper Johannesen and Flemming Pociot
- 77 Stem Cell Therapy in Diabetes, 1137
Angelo Avogaro and Gian Paolo Fadini
- 78 Gene Therapy for Diabetes, 1144
Veronica Jimenez and Fatima Bosch
- 79 Future Drug Treatments for Type 2 Diabetes, 1154
Clifford J. Bailey
- Index, 1167