

Diabetes Care

THE JOURNAL OF CLINICAL AND APPLIED RESEARCH AND EDUCATION

March 2018 Volume 41, Number 3

In This Issue

385 In This Issue of *Diabetes Care*

Editorial

387 American Diabetes Association's Standards of Care: A Paradigm Shift in the Dissemination of Information
W.T. Cefalu, E.G. Berg, M.P. Petersen, and T. Darsow

Commentary

389 Are All Patients With Type 1 Diabetes Destined for Dialysis if They Live Long Enough? Probably Not
G.L. Bakris and M. Molitch

ADA Award Lecture

391 Assessing Health-Related Quality of Life in Patients With Diabetic Foot Disease: Why Is It Important and How Can We Improve? The 2017 Roger E. Pecoraro Award Lecture
D.K. Wukich and K.M. Rasporic

Clinical Care/Education/Nutrition/Psychosocial Research

- ➔ 398 Targeted Microbiome Intervention by Microencapsulated Delayed-Release Niacin Beneficially Affects Insulin Sensitivity in Humans
D. Fangmann, E.-M. Theismann, K. Türk, D.M. Schulte, I. Relling, K. Hartmann, J.K. Keppler, J.-R. Knipp, A. Rehman, F.-A. Heinsen, A. Franke, L. Lenk, S. Freitag-Wolf, E. Appel, S. Gorb, C. Brenner, D. Seeger, G.H. Waetzig, P. Rosenstiel, S. Schreiber, K. Schwarz, and M. Laudes
- 406 Prospective, Cluster-Randomized Trial to Implement the Ottawa Model for Smoking Cessation in Diabetes Education Programs in Ontario, Canada
R.D. Reid, J. Malcolm, E. Wooding, A. Geertsma, D. Aitken, D. Arbeau, C. Blanchard, J.-A. Gagnier, A. Gupta, K.-A. Mullen, P. Oh, S. Papadakis, H. Tulloch, A.G. LeBlanc, G.A. Wells, and A.L. Pipe
- 413 Changes in Gut Microbiota-Related Metabolites and Long-term Successful Weight Loss in Response to Weight-Loss Diets: The POUNDS Lost Trial
Y. Heianza, D. Sun, S.R. Smith, G.A. Bray, F.M. Sacks, and L. Qi

Epidemiology/Health Services Research

- ➔ 420 Low Incidence of End-Stage Renal Disease in Childhood-Onset Type 1 Diabetes Followed for Up to 42 Years
V. Gagnum, M. Saeed, L.C. Stene, T. Leivestad, G. Joner, and T. Skrivarhaug
- 426 Cumulative Kidney Complication Risk by 50 Years of Type 1 Diabetes: The Effects of Sex, Age, and Calendar Year at Onset
T. Costacou and T.J. Orchard
- 434 Incidence of End-Stage Renal Disease in Patients With Type 1 Diabetes
J. Helve, R. Sund, M. Arffman, V. Harjutsalo, P.-H. Groop, C. Grönhagen-Riska, and P. Finne
- 440 Plasma Alkylresorcinol Metabolite, a Biomarker of Whole-Grain Wheat and Rye Intake, and Risk of Type 2 Diabetes and Impaired Glucose Regulation in a Chinese Population
T. Sun, Y. Rong, X. Hu, Y. Zhu, H. Huang, L. Chen, P. Li, S. Li, W. Yang, J. Cheng, X. Yang, P. Yao, F.B. Hu, and L. Liu
- 446 The Bidirectional Association Between Depression and Severe Hypoglycemic and Hyperglycemic Events in Type 1 Diabetes
P. Gilsanz, A.J. Karter, M.S. Beeri, C.P. Quesenberry Jr., and R.A. Whitmer

- 453 Effect of Changing Work Stressors and Coping Resources on the Risk of Type 2 Diabetes: The OHSPIW Cohort Study
Y. Lian, Q. Sun, S. Guan, H. Ge, N. Tao, Y. Jiang, Y. Zhang, L. Ning, J. Xiao, and J. Liu
- 461 Associations of Four Community Factors With Longitudinal Change in Hemoglobin A_{1c} Levels in Patients With Type 2 Diabetes
A.G. Hirsch, T.E. Durden, C. Nordberg, A. Berger, and B.S. Schwartz
- 469 Diabetes Is Associated With Reduced Stress Hyperlactatemia in Cardiac Surgery
G. Greco, K.A. Kirkwood, A.C. Gelijns, A.J. Moskowitz, and D.W. Lam
- 478 Markedly Decreasing Incidence of Blindness in People With and Without Diabetes in Southern Germany
H. Claessen, T. Kvitkina, M. Narres, C. Trautner, I. Zöllner, B. Bertram, and A. Icks
- 485 BMI and Mortality in Patients With New-Onset Type 2 Diabetes: A Comparison With Age- and Sex-Matched Control Subjects From the General Population
J. Edqvist, A. Rawshani, M. Adiels, L. Björck, M. Lind, A.-M. Svensson, S. Gudbjörnsdóttir, N. Sattar, and A. Rosengren
- 494 Associations of General and Central Adiposity With Incident Diabetes in Chinese Men and Women
F. Bragg, K. Tang, Y. Guo, A. Iona, H. Du, M.V. Holmes, Z. Bian, C. Kartsonaki, Y. Chen, L. Yang, Q. Sun, C. Dong, J. Chen, R. Collins, R. Peto, L. Li, and Z. Chen, for the China Kadoorie Biobank (CKB) Collaborative Group
- 503 Risk of Hypoglycemia Following Hospital Discharge in Patients With Diabetes and Acute Kidney Injury
A.M. Hung, E.D. Siew, O.D. Wilson, A.M. Perkins, R.A. Greevy Jr., J. Horner, K. Abdel-Kader, S.K. Parr, C.L. Roumie, M.R. Griffin, T.A. Ikizler, T. Speroff, and M.E. Matheny
- 513 Risk of Infection in Type 1 and Type 2 Diabetes Compared With the General Population: A Matched Cohort Study
I.M. Carey, J.A. Critchley, S. DeWilde, T. Harris, F.J. Hosking, and D.G. Cook
- 522 Early Infant Diet and Islet Autoimmunity in the TEDDY Study
U. Uusitalo, H.-S. Lee, C. Andrén Aronsson, K. Vehik, J. Yang, S. Hummel, K. Silvis, Å. Lernmark, M. Rewers, W. Hagopian, J.-X. She, O. Simell, J. Toppari, A.-G. Ziegler, B. Akolkar, J. Krischer, S.M. Virtanen, J.M. Norris, and the TEDDY Study Group

Emerging Technologies and Therapeutics

- 531 Pharmacokinetic and Pharmacodynamic Characteristics of Dasiglucagon, a Novel Soluble and Stable Glucagon Analog
U. Hövelmann, B.V. Bysted, U. Mouritzen, F. Macchi, D. Lamers, B. Kronshage, D.V. Møller, and T. Heise
- 538 Effects of Pemafibrate, a Novel Selective PPAR α Modulator, on Lipid and Glucose Metabolism in Patients With Type 2 Diabetes and Hypertriglyceridemia: A Randomized, Double-Blind, Placebo-Controlled, Phase 3 Trial
E. Araki, S. Yamashita, H. Arai, K. Yokote, J. Sato, T. Inoguchi, J. Nakamura, H. Maegawa, N. Yoshioka, Y. Tanizawa, H. Watada, H. Suganami, and S. Ishibashi
- 547 Metformin Treatment in Patients With Type 2 Diabetes and Chronic Kidney Disease Stages 3A, 3B, or 4
J.-D. Lalau, F. Kajbaf, Y. Bennis, A.-S. Hurtel-Lemaire, F. Belpaire, and M.E. De Broe

Keep up with the latest information for *Diabetes Care* and other ADA titles via Facebook (/ADAJournals) and Twitter (@ADA_Journals).

All articles in *Diabetes Care* are available online at diabetes.org/diabetescare. Cover articles (➔) and select content are available free of charge. Other articles are available free to print subscribers or can be purchased as e-prints or reprints.

ADA's *Diabetes Core Update* podcasts are available at diabetesjournals.org and through iTunes.

Icons shown below appear on the first page of an article if more information is available online.



Free Article



Video



Podcast



Supplementary Data





Companion Article

Pathophysiology/Complications

- 554** *TCF7L2* Genetic Variation Augments Incretin Resistance and Influences Response to a Sulfonylurea and Metformin: The Study to Understand the Genetics of the Acute Response to Metformin and Glipizide in Humans (SUGAR-MGH)
S. Srinivasan, V. Kaur, B. Chamarthi, K.R. Littleton, L. Chen, A.K. Manning, J. Merino, M.K. Thomas, M. Hudson, A. Goldfine, and J.C. Florez

Cardiovascular and Metabolic Risk

- ➔ **562**  Objectively Measured Physical Activity and Sedentary Time Are Associated With Cardiometabolic Risk Factors in Adults With Prediabetes: The PREVIEW Study
N. Swindell, K. Mackintosh, M. McNarry, J.W. Stephens, D. Sluik, M. Fogelholm, M. Drummen, I. MacDonald, J.A. Martinez, T. Handjieva-Darlenska, S.D. Poppitt, J. Brand-Miller, T.M. Larsen, A. Raben, and G. Stratton
- 570** Advanced Glycation End Products, Oxidation Products, and Incident Cardiovascular Events in Patients With Type 2 Diabetes
J. Koska, A. Saremi, S. Howell, G. Bahn, B. De Courten, H. Ginsberg, P.J. Beisswenger, and P.D. Reaven, for the VADT Investigators
- 577** Risk Assessment in Patients With Diabetes With the TIMI Risk Score for Atherothrombotic Disease
B.A. Bergmark, D.L. Bhatt, E. Braunwald, D.A. Morrow, P.G. Steg, Y. Gurm, A. Cahn, O. Mosenson, I. Raz, E. Bohula, and B.M. Scirica
- 586** Validation of Risk Equations for Complications of Type 2 Diabetes (RECODE) Using Individual Participant Data From Diverse Longitudinal Cohorts in the U.S.
S. Basu, J.B. Sussman, S.A. Berkowitz, R.A. Hayward, A.G. Bertoni, A. Correa, S. Mwasongwe, and J.S. Yudkin
- 596** Increased Risk of Severe Hypoglycemic Events Before and After Cardiovascular Outcomes in TECOS Suggests an At-Risk Type 2 Diabetes Frail Patient Phenotype
E. Standl, S.R. Stevens, P.W. Armstrong, J.B. Buse, J.C.N. Chan, J.B. Green, J.M. Lachin, A. Scheen, F. Travert, F. Van de Werf, E.D. Peterson, and R.R. Holman, on behalf of the TECOS Study Group
- 604** Characteristics Associated With Decreased or Increased Mortality Risk From Glycemic Therapy Among Patients With Type 2 Diabetes and High Cardiovascular Risk: Machine Learning Analysis of the ACCORD Trial
S. Basu, S. Raghavan, D.J. Wexler, and S.A. Berkowitz
- ➔ **613**  Clinical Impact of ITCA 650, a Novel Drug-Device GLP-1 Receptor Agonist, in Uncontrolled Type 2 Diabetes and Very High Baseline HbA_{1c}: The FREEDOM-1 HBL (High Baseline) Study
R.R. Henry, J. Rosenstock, D.S. Denham, P. Prabhakar, L. Kjems, and M.A. Baron

Novel Communications in Diabetes

- 620** No Evidence of Increase in Calcitonin Concentrations or Development of C-Cell Malignancy in Response to Liraglutide for Up to 5 Years in the LEADER Trial
L. Hegedüs, S.I. Sherman, R.M. Tuttle, B.J. von Scholten, S. Rasmussen, J.D. Karsbøl, and G.H. Daniels, for the LEADER Publication Committee on behalf of the LEADER Trial Investigators
- 623** Fasting Glucose and All-Cause Mortality by Age in Diabetes: A Prospective Cohort Study
S.-W. Yi, S. Park, Y.-h. Lee, B. Balkau, and J.-Y. Yi

Review

- 627** Gastrointestinal Symptoms in Diabetes: Prevalence, Assessment, Pathogenesis, and Management
Y.T. Du, C.K. Rayner, K.L. Jones, N.J. Talley, and M. Horowitz

Clinical Images in Diabetes

- 638** Anti-Programmed Death 1 (PD-1) Antibodies and the Pancreas: A Diabetic Storm Ahead?
L. Marchand, A. Thivolet, P. Saintigny, N. Fabien, J. Vouillarmet, and C. Thivolet

Errata

- 640** Erratum. Factors Associated With Diabetes-Specific Health-Related Quality of Life in Youth With Type 1 Diabetes: The Global TEENS Study. *Diabetes Care* 2017;40:1002–1009
B.J. Anderson, L.M. Laffel, C. Domenger, T. Danne, M. Phillip, C. Mazza, R. Hanas, S. Waldron, R.W. Beck, F. Calvi-Gries, and C. Mathieu
- 640** Erratum. Mitigating Cardiovascular Risk in Type 2 Diabetes With Antidiabetes Drugs: A Review of Principal Cardiovascular Outcome Results of EMPA-REG OUTCOME, LEADER, and SUSTAIN-6 Trials. *Diabetes Care* 2017;40:821–831
S. Kaul
- 640** Erratum. Maternal BMI and Glycemia Impact the Fetal Metabolome. *Diabetes Care* 2017;40:902–910
W.L. Lowe Jr., J.R. Bain, M. Nodzinski, A.C. Reisetter, M.J. Muehlbauer, R.D. Stevens, O.R. Ilkayeva, L.P. Lowe, B.E. Metzger, C.B. Newgard, and D.M. Scholtens, for the HAPO Study Cooperative Research Group

Issues and Events

- 642** Issues and Events

e-Letters – Observations

- e21** Effect of Single Dose of RANKL Antibody Treatment on Acute Charcot Neuro-osteoarthropathy of the Foot
T.E. Busch-Westbroek, K. Delpout, R. Balm, S.A. Bus, T. Schepers, E.J. Peters, F.F. Smithuis, M. Maas, and M. Nieuwdorp
- e23** Immunoadsorption Followed by Rituximab as a Definitive Treatment for Insulin Autoimmune Syndrome (Hirata Syndrome): A Case Report
T.M. Kroemer, A. Erler, E. Tsoardi, M. Gruber, S. Tselmin, U. Julius, M. Aringer, L.C. Hofbauer, and T.D. Rachner
- e25** Six-Year Diabetes Incidence After Genetic Risk Testing and Counseling: A Randomized Clinical Trial
J.L. Vassy, W. He, J.C. Florez, J.B. Meigs, and R.W. Grant

e-Letters – Comments and Responses

- e27** Comment on Russell-Jones et al. *Diabetes Care* 2017;40:943–950. Comment on Bowering et al. *Diabetes Care* 2017;40:951–957
T. Wu, C.S. Marathe, M. Horowitz, K.L. Jones, and C.K. Rayner
- e29** Response to Comment on Russell-Jones et al. *Diabetes Care* 2017;40:943–950. Comment on Bowering et al. *Diabetes Care* 2017;40:951–957
B.W. Bode, K. Bowering, and D. Russell-Jones

- e31** Comment on Young-Hyman et al. Psychosocial Care for People With Diabetes: A Position Statement of the American Diabetes Association. *Diabetes Care* 2016;39:2126–2140
F.J. Snoek, N. Hermanns, M. de Wit, J. Huber, J. Sturt, F. Pouwer, C.E. Lloyd, I. Willaing, and A. Nouwen, on behalf of the Psychosocial Aspects of Diabetes Study Group of the European Association for the Study of Diabetes
- e33** Response to Comment on Young-Hyman et al. Psychosocial Care for People With Diabetes: A Position Statement of the American Diabetes Association. *Diabetes Care* 2016;39:2126–2140
D. Young-Hyman, M. de Groot, F. Hill-Briggs, J.S. Gonzalez, K. Hood, and M. Peyrot
- e35** Comment on Jaiswal et al. Prevalence of and Risk Factors for Diabetic Peripheral Neuropathy in Youth With Type 1 and Type 2 Diabetes: SEARCH for Diabetes in Youth Study. *Diabetes Care* 2017;40:1226–1232
A. Simoneau, M. Monlun, P. Poupon, L. Baillet-Blanco, L. Alexandre, K. Mohammedi, and V. Rigalleau
- e37** Response to Comment on Jaiswal et al. Prevalence of and Risk Factors for Diabetic Peripheral Neuropathy in Youth With Type 1 and Type 2 Diabetes: SEARCH for Diabetes in Youth Study. *Diabetes Care* 2017;40:1226–1232
M. Jaiswal, J. Divers, R. Pop-Busui, and E.L. Feldman
- e38** Comment on Ohkuma et al. Cardiac Stress and Inflammatory Markers as Predictors of Heart Failure in Patients With Type 2 Diabetes: The ADVANCE Trial. *Diabetes Care* 2017;40:1203–1209
T. Kawada
- e39** Response to Comment on Ohkuma et al. Cardiac Stress and Inflammatory Markers as Predictors of Heart Failure in Patients With Type 2 Diabetes: The ADVANCE Trial. *Diabetes Care* 2017;40:1203–1209
T. Ohkuma, M. Woodward, and J. Chalmers, on behalf of the ADVANCE Collaborative Group



The American Diabetes Association (ADA) is the nation's leading voluntary health organization supporting diabetes research, information, and advocacy. Its mission is to prevent and cure diabetes and to improve the lives of all people affected by diabetes. ADA is the leading publisher of comprehensive diabetes information. Its huge library of books and periodicals covers every aspect of diabetes and diabetes care.

To join ADA: Call 1-800-806-7801 or visit professional.diabetes.org/membership

To subscribe to ADA journals: Call 1-800-DIABETES or go to diabetesjournals.org

To order ADA books: Call 1-800-232-6733 or visit shopdiabetes.org

To access ADA's library of professional resources: Go to professional.diabetes.org

For more information about diabetes or ADA programs and services: Call 1-800-DIABETES. E-mail: AskADA@diabetes.org or visit diabetes.org

To locate an ADA/NCQA Recognized Provider of quality diabetes care in your area: Visit recognition.ncqa.org

To join the fight to increase funding for diabetes research, end discrimination, and improve insurance coverage: Call 1-800-DIABETES or visit diabetes.org/advocacy

To find out how you can get involved with the programs in your community: Call 1-800-DIABETES or visit diabetes.org/in-my-community

To find out about important research regarding diabetes: Go to diabetes.org/research-and-practice

To make a donation or memorial contribution: Call 1-800-DIABETES or visit diabetes.org/donate