
Hypertension

Volume 71 Number 6 June 2018

Clinical Implications 955

Clinical–Pathological Conference

Case of Severe Hypertension and Nephrotic Range Proteinuria

Michael Bursztyn, Rhian M. Touyz, Cheryl L. Laffer, Robert M. Carey, Anna F. Dominiczak 956

Guidelines Conversation

Hypertension Editors Welcome Comments From Regional Hypertension Societies

Anna F. Dominiczak, Rhian M. Touyz 962

Blood Pressure Measurement and Hypertension Diagnosis in the 2017 US Guidelines: First Things First

George Stergiou, Paolo Palatini, Roland Asmar, Alejandro de la Sierra, Martin Myers, Andrew Shennan, Jiguang Wang, Eoin O'Brien, Gianfranco Parati 963

Treatment Thresholds and Targets in Hypertension: Different Readings of the Same Evidence?

Costas Tsioufis, Costas Thomopoulos, Reinhold Kreutz 966

Blood Pressure Management: Beyond the Guidelines

Daniel W. Jones 969

Blood Pressure Down Under, but Down Under What?: US and Australian Hypertension Guideline Conversation

Erin Hoare, Bronwyn A. Kingwell, Garry L.R. Jennings 972

Hypertension Guidelines in the United States and Canada: Are We Getting Closer?

Stella S. Daskalopoulou, Doreen M. Rabi, Ernesto L. Schiffrin, Ross D. Feldman, Raj S. Padwal, Guy Tremblay, Nadia A. Khan; on behalf of Hypertension Canada 976

Could 130/80 mmHg Be Adopted as the Diagnostic Threshold and Management Goal of Hypertension in Consideration of the Characteristics of Asian Populations?

Kazuomi Kario, Ji-Guang Wang 979

Global Implications of Blood Pressure Thresholds and Targets: Guideline Conversations From the World Hypertension League

Daniel T. Lackland, Lawrence J. Beilin, Norm R.C. Campbell, Marc G. Jaffe, Marcelo Orias, C. Venkata Ram, Michael A. Weber, Xin-Hua Zhang; on behalf of the World Hypertension League 985

Absolute Risk-Based Treatment Using Adaptive Blood Pressure Thresholds and Targets Is Crucial to Older Multimorbid Patients With High Fall Risk

Vernon Min Sen Oh 988

Brief Reviews

Sodium Handling by the Blood Vessel Wall: Critical for Hypertension Development

Eliane F.E. Wenstedt, Rik H.G. Olde Engberink, Liffert Vogt 990

Hypertension (ISSN 0194-911X) is published monthly by Wolters Kluwer Health, Inc. at 14700 Citicorp Drive, Bldg 3, Hagerstown, MD 21742. Business offices are located at Two Commerce Square, 2001 Market Street, Philadelphia, PA 19103. Production offices are located at 351 West Camden Street, Baltimore, MD 21201-2436. Individuals may subscribe for their personal use at the following rates for print subscriptions: \$225 for AHA/ASA Domestic and International Members (excluding General Membership level), or \$614 for domestic non-members and \$791 for international non-members. AHA membership information can be found online at professional.heart.org. Periodicals postage paid at Hagerstown, MD, and additional mailing offices. POSTMASTER: Send address changes to HYPERTENSION, American Heart Association, Wolters Kluwer Health, Inc., PO Box 1610, Hagerstown, MD 21740.

Nocturnal Hypertension: New Technology and Evidence <i>Kazuomi Kario</i> OPEN	997
Saga of Familial Hyperaldosteronism: Yet a New Channel <i>Livia Lenzini, Selene Prisco, Brasilina Caroccia, Gian Paolo Rossi</i>	1010

Mid-Career Award for Research Excellence

Beneficial Effects of High Potassium: Contribution of Renal Basolateral K⁺ Channels <i>Alexander Staruschenko</i>	1015
--	------

Editorial Commentaries

Targeting Mitochondria in Age-Related Vascular Changes: A New Arrow to the Bow of Antioxidant Treatment? <i>Stefano Masi, Agostino Virdis</i>	1023
Salt, Blood Pressure, and Aldosterone in Women and Men <i>Friedrich C. Luft</i>	1026
Personalizing Hypertension Treatment? <i>Sarah B. Withers, Sophie N. Saxton, Anthony M. Heagerty</i>	1028

Original Articles

Epidemiology/Population

Simultaneously Measured Interarm Blood Pressure Difference and Stroke: An Individual Participants Data Meta-Analysis <i>Hirofumi Tomiyama, Toshiaki Ohkuma, Toshiharu Ninomiya, Chisa Mastumoto, Kazuomi Kario, Satoshi Hoshide, Yoshikuni Kita, Toyoshi Inoguchi, Yasutaka Maeda, Katsuhiko Kohara, Yasuharu Tabara, Motoyuki Nakamura, Takayoshi Ohkubo, Hirotaka Watada, Masanori Munakata, Mitsuru Ohishi, Norihisa Ito, Michinari Nakamura, Tetsuo Shoji, Charalambos Vlachopoulos, Akira Yamashina; on behalf of the collaborative group for J-BAVEL-IAD (Japan Brachial-Ankle Pulse Wave Velocity Individual Participant Data Meta-Analysis of Prospective Studies to Examine the Significance of Inter-Arm Blood Pressure Difference)</i>	1030
---	------

• Online Data Supplement

Impacts of Prediabetes Mellitus Alone or Plus Hypertension on the Coronary Severity and Cardiovascular Outcomes <i>Hui-Hui Liu, Ye-Xuan Cao, Sha Li, Yuan-Lin Guo, Cheng-Gang Zhu, Na-Qiong Wu, Ying Gao, Qiu-Ting Dong, Xi Zhao, Yan Zhang, Di Sun, Jian-Jun Li</i>	1039
--	------

• Online Data Supplement

Blood Pressure-Related Risk Among Users Versus Nonusers of Antihypertensives: A Population-Based Cohort in Korea <i>Hae Hyuk Jung, Ji In Park, Jin Seon Jeong</i>	1047
---	------

• Online Data Supplement

Clinical Trials

Chronic Supplementation With a Mitochondrial Antioxidant (MitoQ) Improves Vascular Function in Healthy Older Adults <i>Matthew J. Rossman, Jessica R. Santos-Parker, Chelsea A.C. Steward, Nina Z. Bispham, Lauren M. Cuevas, Hannah L. Rosenberg, Kayla A. Woodward, Michel Chonchol, Rachel A. Gioscia-Ryan, Michael P. Murphy, Douglas R. Seals</i>	1056
--	------

Editorial Commentary, p 1023 • [Online Data Supplement](#)

Impact of Intensive Versus Standard Blood Pressure Management by Tertiles of Blood Pressure in SPRINT (Systolic Blood Pressure Intervention Trial)

Brian P. Shapiro, Walter T. Ambrosius, Joseph L. Blackshear, William C. Cushman, Paul K. Whelton, Suzanne Oparil, Srinivasan Beddhu, Jamie P. Dwyer, Lisa H. Gren, William J. Kostis, Michael Lioudis, Roberto Pisoni, Clive Rosendorff, William E. Haley, for the SPRINT Research Group 1064

• [Online Data Supplement](#)

Renin–Angiotensin System

Angiotensin II Short-Loop Feedback: Is There a Role of Ang II for the Regulation of the Renin System In Vivo?

Bjoern Neubauer, Julia Schrankl, Dominik Steppan, Katharina Neubauer, Maria Luisa Sequeira-Lopez, Li Pan, R. Ariel Gomez, Thomas M. Coffman, Kenneth W. Gross, Armin Kurtz, Charlotte Wagner 1075

• [Online Data Supplement](#)

Biological Sex Modulates the Adrenal and Blood Pressure Responses to Angiotensin II

Mohammad Zaki Shukri, Jia Wei Tan, Worapaka Manosroi, Luminita H. Pojoga, Alicia Rivera, Jonathan S. Williams, Ellen W. Seely, Gail K. Adler, Iris Z. Jaffe, Richard H. Karas, Gordon H. Williams, Jose R. Romero 1083

[Editorial Commentary, p 1026](#) • [Online Data Supplement](#)

Angiotensin II Promotes $K_{v}7.4$ Channels Degradation Through Reduced Interaction With HSP90 (Heat Shock Protein 90)

Vincenzo Barrese, Jennifer B. Stott, Hericka B. Figueiredo, Aisah A. Aubdool, Adrian J. Hobbs, Thomas A. Jepps, Alister J. McNeish, Iain A. Greenwood 1091

• [Online Data Supplement](#)

Kidney

Association of Pulse Wave Velocity With Chronic Kidney Disease Progression and Mortality: Findings From the CRIC Study (Chronic Renal Insufficiency Cohort)

Raymond R. Townsend, Amanda Hyre Anderson, Julio A. Chirinos, Harold I. Feldman, Juan E. Grunwald, Lisa Nessel, Jason Roy, Matthew R. Weir, Jackson T. Wright Jr, Nisha Bansal, Chi-yuan Hsu, John W. Kusek, Mahboob Rahman, for the CRIC Study Investigators 1101

• [Online Data Supplement](#)

Direct Recording of Cardiac and Renal Sympathetic Nerve Activity Shows Differential Control in Renovascular Hypertension

Tycho R. Tromp, Darvina Mahesh, Jaap A. Joles, Rohit Ramchandra 1108

• [Online Data Supplement](#)

Renal-Specific Silencing of TNF (Tumor Necrosis Factor) Unmasks Salt-Dependent Increases in Blood Pressure via an NKCC2A ($Na^+K^+2Cl^-$ Cotransporter Isoform A)-Dependent Mechanism

Shoujin Hao, Mary Hao, Nicholas R. Ferreri 1117

• [Online Data Supplement](#)

Pulse Wave Velocity and Prognosis in End-Stage Kidney Disease

Giovanni Tripepi, Mohsen Agharazii, Bruno Pannier, Graziella D'Arrigo, Francesca Mallamaci, Carmine Zoccali, Gerard London 1126

• [Online Data Supplement](#)

End-Organ Damage

Thymosin $\beta 4$ Deficiency Exacerbates Renal and Cardiac Injury in Angiotensin-II–Induced Hypertension

Nitin Kumar, Tang-Dong Liao, Cesar A. Romero, Mani Maheshwari, Edward L. Peterson, Oscar A. Carretero .. 1133

• [Online Data Supplement](#)

Heart

Therapeutic Potential of a Novel Necrosis Inhibitor, 7-Amino-Indole, in Myocardial Ischemia–Reperfusion Injury

In-Chang Hwang, Ju-Young Kim, Ji-Hyun Kim, Joo-Eun Lee, Ji-Yun Seo, Jae-Won Lee, Jonghanne Park, Han-Mo Yang, Soon-Ha Kim, Hyun-Jai Cho, Hyo-Soo Kim **OPEN** 1143

• [Online Data Supplement](#)

Pulmonary Hypertension

Involvement of Neuroinflammation in the Pathogenesis of Monocrotaline-Induced Pulmonary Hypertension

Ravindra K. Sharma, Aline C. Oliveira, Seungbum Kim, Katya Rigatto, Jasenka Zubcevic, Anandharajan Rathinasabapathy, Ashok Kumar, Joseph J. Lebowitz, Habibeh Khoshbouei, Gilberto Lobaton, Victor Aquino, Elaine M. Richards, Michael J. Katovich, Vinayak Shenoy, Mohan K. Raizada 1156

• [Online Data Supplement](#)

Pregnancy and Hypertension

Performance of a Blood Pressure Smartphone App in Pregnant Women: The iPARR Trial (iPhone App Compared With Standard RR Measurement)

Christina J. Raichle, Jens Eckstein, Olav Lapaire, Licia Leonardi, Noé Brasier, Annina S. Vischer, Thilo Burkard 1164

• [Online Data Supplement](#)

Influence of Gestational Age at Initiation of Antihypertensive Therapy: Secondary Analysis of CHIPS Trial Data (Control of Hypertension in Pregnancy Study)

Anouk Pels, Ben Willem J. Mol, Joel Singer, Terry Lee, Peter von Dadelszen, Wessel Ganzevoort, Elizabeth Asztalos, Laura A. Magee; on behalf of the CHIPS Study Group **OPEN** 1170

• [Online Data Supplement](#)

Preeclampsia

Neurofilament as Neuronal Injury Blood Marker in Preeclampsia

Katrina Suzanne Evers, Andrew Atkinson, Christian Barro, Urs Fisch, Marc Pfister, Evelyn A. Huhn, Olav Lapaire, Jens Kuhle, Sven Wellmann 1178

• [Online Data Supplement](#)

Serum and Urine Thioflavin-T-Enhanced Fluorescence in Severe Preeclampsia

Katherine R. Millen, Catalin S. Buhimschi, Guomao Zhao, Kara M. Rood, Sammy Tabbah, Irina A. Buhimschi 1185

Vascular Remodeling

Age- and Sex-Specific Reference Values for Media/Lumen Ratio in Small Arteries and Relationship With Risk Factors

Rosa Maria Bruno, Guido Grassi, Gino Seravalle, Carmine Savoia, Damiano Rizzoni, Agostino Virdis; on behalf of the Study Group on Micro- and Macrocirculation of the Italian Society of Hypertension (SIIA) 1193

Editorial Commentary, p 1028 • [Online Data Supplement](#)

Vascular Cell Glycocalyx-Mediated Vascular Remodeling Induced by Hemodynamic Environmental Alteration

Jiajia Liu, Hongyan Kang, Xuejiao Ma, Anqiang Sun, Huiqin Luan, Xiaoyan Deng, Yubo Fan 1201

• [Online Data Supplement](#)

Oxidative Stress

Cystathionine γ -Lyase–Produced Hydrogen Sulfide Controls Endothelial NO Bioavailability and Blood Pressure

István András Szijártó, Lajos Markó, Milos R. Filipovic, Jan Lj Miljkovic, Christoph Tabeling, Dmitry Tsvetkov, Ning Wang, Luiza A. Rabelo, Martin Witzentrath, André Diedrich, Jens Tank, Noriyuki Akahoshi, Shotaro Kamata, Isao Ishii, Maik Gollasch 1210

• [Online Data Supplement](#)

Cognitive and Vascular Function

Vascular Function Is Improved After an Environmental Enrichment Program: The Train the Brain–Mind the Vessel Study

Rosa Maria Bruno, Francesco Stea, Rosa Sicari, Lorenzo Ghiadoni, Stefano Taddei, Andrea Ungar, Ubaldo Bonuccelli, Gloria Tognoni, Simona Cintoli, Serena Del Turco, Silverio Sbrana, Luna Gargani, Gennaro D'Angelo, Lorenza Pratali, Nicoletta Berardi, Lamberto Maffei, Eugenio Picano; on behalf of the Train the Brain Consortium 1218

• [Online Data Supplement](#)

Nervous System

Neurotransmitter Switching Coupled to β -Adrenergic Signaling in Sympathetic Neurons in Prehypertensive States

Emma N. Bardsley, Harvey Davis, Keith J. Buckler, David J. Paterson **OPEN** 1226

• [Online Data Supplement](#)

Blood Pressure Phenotypes

Discovery of New Blood Pressure Phenotypes and Relation to Accuracy of Cuff Devices Used in Daily Clinical Practice

Dean S. Picone, Martin G. Schultz, Xiaoqing Peng, J. Andrew Black, Nathan Dwyer, Philip Roberts-Thomson, Chen-Huan Chen, Hao-Min Cheng, Giacomo Pucci, Ji-Guang Wang, James E. Sharman 1239

• [Online Data Supplement](#)

Leptin

Neuronal Suppressor of Cytokine Signaling 3: Role in Modulating Chronic Metabolic and Cardiovascular Effects of Leptin

Jussara M. do Carmo, Alexandre A. da Silva, John Nathan Freeman, Zhen Wang, Sydney P. Moak, Michael W. Hankins, Heather A. Drummond, John E. Hall 1248

• [Online Data Supplement](#)

Organochlorine Pollutants and Hypertension

Persistent Organochlorine Pollutants in Plasma, Blood Pressure, and Hypertension in a Longitudinal Study

Carolina Donat-Vargas, Agneta Åkesson, Andreas Tornevi, Maria Wennberg, Johan Sommar, Hannu Kiviranta, Panu Rantakokko, Ingvar A. Bergdahl **OPEN** 1258

• [Online Data Supplement](#)

Clinical Practice Guideline: Executive Summary

2017 ACC/AHA/AAPA/ABC/ACPM/AGS/APhA/ASH/ASPC/NMA/PCNA Guideline for the Prevention, Detection, Evaluation, and Management of High Blood Pressure in Adults: Executive Summary: A Report of the American College of Cardiology/American Heart Association Task Force on Clinical Practice Guidelines

Paul K. Whelton, MB, MD, MSc, FAHA, Chair; Robert M. Carey, MD, FAHA, Vice Chair; Wilbert S. Aronow, MD, FACC, FAHA; Donald E. Casey, Jr, MD, MPH, MBA, FAHA; Karen J. Collins, MBA; Cheryl Dennison Himmelfarb, RN, ANP, PhD, FAHA; Sondra M. DePalma, MHS, PA-C, CLS, AACC; Samuel Gidding, MD, FAHA; Kenneth A. Jamerson, MD; Daniel W. Jones, MD, FAHA; Eric J. MacLaughlin, PharmD; Paul Muntner, PhD, FAHA; Bruce Ovbiagele, MD, MSc, MAS, MBA, FAHA; Sidney C. Smith, Jr, MD, MACC, FAHA; Crystal C. Spencer, JD; Randall S. Stafford, MD, PhD; Sandra J. Taler, MD, FAHA; Randal J. Thomas, MD, MS, FACC, FAHA; Kim A. Williams, Sr, MD, MACC, FAHA; Jeff D. Williamson, MD, MHS; Jackson T. Wright, Jr, MD, PhD, FAHA 1269

• [Online Data Supplement](#)

Clinical Practice Guideline

2017 ACC/AHA/AAPA/ABC/ACPM/AGS/APhA/ASH/ASPC/NMA/PCNA Guideline for the Prevention, Detection, Evaluation, and Management of High Blood Pressure in Adults: A Report of the American College of Cardiology/American Heart Association Task Force on Clinical Practice Guidelines

Paul K. Whelton, MB, MD, MSc, FAHA, Chair; Robert M. Carey, MD, FAHA, Vice Chair; Wilbert S. Aronow, MD, FACC, FAHA; Donald E. Casey, Jr, MD, MPH, MBA, FAHA; Karen J. Collins, MBA; Cheryl Dennison Himmelfarb, RN, ANP, PhD, FAHA; Sondra M. DePalma, MHS, PA-C, CLS, AACC; Samuel Gidding, MD, FAHA; Kenneth A. Jamerson, MD; Daniel W. Jones, MD, FAHA; Eric J. MacLaughlin, PharmD; Paul Muntner, PhD, FAHA; Bruce Ovbiagele, MD, MSc, MAS, MBA, FAHA; Sidney C. Smith, Jr, MD, MACC, FAHA; Crystal C. Spencer, JD; Randall S. Stafford, MD, PhD; Sandra J. Taler, MD, FAHA; Randal J. Thomas, MD, MS, FACC, FAHA; Kim A. Williams, Sr, MD, MACC, FAHA; Jeff D. Williamson, MD, MHS; Jackson T. Wright, Jr, MD, PhD, FAHA ★e13

• [Online Data Supplement](#)

Systematic Review

Systematic Review for the 2017 ACC/AHA/AAPA/ABC/ACPM/AGS/APhA/ASH/ASPC/NMA/PCNA Guideline for the Prevention, Detection, Evaluation, and Management of High Blood Pressure in Adults: A Report of the American College of Cardiology/American Heart Association Task Force on Clinical Practice Guidelines

David M. Reboussin, PhD, Chair; Norrina B. Allen, PhD, MPH, FAHA; Michael E. Griswold, PhD; Eliseo Guallar, MD; Yuling Hong, MD, MSc, PhD, FAHA; Daniel T. Lackland, DrPH, FAHA, FASH; Edgar (Pete) R. Miller III, PhD, MD; Tamar Polonsky, MD, MSCl; Angela M. Thompson-Paul, PhD, MSPH; Suma Vupputuri, PhD, MPH, FAHA ★e116

• [Online Data Supplement](#)

Corrections

Correction to: 2017 ACC/AHA/AAPA/ABC/ACPM/AGS/APhA/ASH/ASPC/NMA/PCNA Guideline for the Prevention, Detection, Evaluation, and Management of High Blood Pressure in Adults: Executive Summary: A Report of the American College of Cardiology/American Heart Association Task Force on Clinical Practice Guidelines. ★e136

Correction to: 2017 ACC/AHA/AAPA/ABC/ACPM/AGS/APhA/ASH/ASPC/NMA/PCNA Guideline for the Prevention, Detection, Evaluation, and Management of High Blood Pressure in Adults: A Report of the American College of Cardiology/American Heart Association Task Force on Clinical Practice Guidelines ★e140

Correction to: Systematic Review for the 2017 ACC/AHA/AAPA/ABC/ACPM/AGS/APhA/ASH/ASPC/NMA/PCNA Guideline for the Prevention, Detection, Evaluation, and Management of High Blood Pressure in Adults: A Report of the American College of Cardiology/American Heart Association Task Force on Clinical Practice Guidelines. ★e145

★ = Published online only.

Hypertension

JOURNAL OF THE AMERICAN HEART ASSOCIATION



71 (6)

Hypertension. 2018;71:e136-1324

Hypertension is published by the American Heart Association, 7272 Greenville Avenue, Dallas, TX 75231

Copyright © 2018 American Heart Association, Inc. All rights reserved.

Print ISSN: 0194-911X. Online ISSN: 1524-4563

The online version of this article, along with updated information and services, is located on the World Wide Web at:

<http://hyper.ahajournals.org/content/71/6>

Permissions: Requests for permissions to reproduce figures, tables, or portions of articles originally published in *Hypertension* can be obtained via RightsLink, a service of the Copyright Clearance Center, not the Editorial Office. Once the online version of the published article for which permission is being requested is located, click Request Permissions in the middle column of the Web page under Services. Further information about this process is available in the [Permissions and Rights Question and Answer](#) document.

Reprints: Information about reprints can be found online at:
<http://www.lww.com/reprints>

Subscriptions: Information about subscribing to *Hypertension* is online at:
<http://hyper.ahajournals.org/subscriptions/>