Editorial

Body Weight, Not Thrombus-Burden Tissue Plasminogen Activator Dosing: But Still
Andrei V. Alexandrov, MD; Georgios Tsivgoulos, MD, FESO ........................................... 2723

Stroke: Highlights of Selected Articles ........................................... 2725

Original Contributions

Clinical Sciences

Incidence and Case-Fatality of Stroke on the East Border of the European Union: The Grodno Stroke Study
Sergey D. Kulesh, MD; Nina A. Filina, MD; Nataliya M. Frantava, MD; Natallia L. Zhytko, MD; Tatsiana M. Kastinevich, MD; Liudmila A. Kliatskova, MD; Mecylslovus S. Shumskas, MD; Max J. Hilz, MD; Stefan Schwab, MD; Peter L. Kolominsky-Rabas, MD, MBA ........................................... 2726

Identifying Patients at High Risk for Stroke Despite Anticoagulation: A Comparison of Contemporary Stroke Risk Stratification Schemes in an Anticoagulated Atrial Fibrillation Cohort
Gregory Y.H. Lip, MD; Lars Frison, PhD; Jonathan L. Halperin, MD; Deirdre A. Lane, PhD ........................................... 2731

An Epidemiological Survey of Stroke in Lhasa, Tibet, China
Yuhua Zhao, MD; Zhiping Yao, MD; Wendy D’Souza, PhD; Cairong Zhu, PhD; Hua Chun, MM; Cidan Zhuoga, MM; Qin Zhang, MD; Xuejun Hu, MM; Dong Zhou, MD ........................................... 2739

Distinctive RNA Expression Profiles in Blood Associated With White Matter Hyperintensities in Brain
Huichun Xu, MD, PhD; Boryana Stamova, PhD; Glen Jickling, MD; Yingfang Tian, PhD; Xinhua Zhan, MD, PhD; Bradley P. Ander, PhD; Dazhi Liu, PhD; Renée Turner, PhD; Jonathan Rosand, MD; Larry B. Goldstein, MD; Karen L. Furie, MD; Piero Verro, MD; S. Claiborne Johnston, MD, PhD; Frank R. Sharp, MD; Charles S. DeCarli, MD ........................................... 2744

Genomewide Linkage and Peakwide Association Analyses of Carotid Plaque in Caribbean Hispanics
Chuanhui Dong, PhD; Ashley Beecham, MS; Susan Slifer, MS; Liyong Wang, PhD; Susan H. Blanton, PhD; Clinton B. Wright, MD; Tatjana Rundek, MD, PhD; Ralph L. Sacco, MD; Huichun Xu, MD, PhD; Boryana Stamova, PhD; Glen Jickling, MD; Yingfang Tian, PhD; Renee Turner, PhD; Jonathan Rosand, MD; Larry B. Goldstein, MD; Karen L. Furie, MD; Piero Verro, MD; S. Claiborne Johnston, MD, PhD; Frank R. Sharp, MD; Charles S. DeCarli, MD; Dazhi Liu, PhD; Chuanhui Dong, PhD; Ashley Beecham, MS; Susan Slifer, MS; Liyong Wang, PhD; Susan H. Blanton, PhD; Clinton B. Wright, MD; Tatjana Rundek, MD, PhD; Ralph L. Sacco, MD; Huichun Xu, MD, PhD; Boryana Stamova, PhD; Glen Jickling, MD; Yingfang Tian, PhD; Renee Turner, PhD; Jonathan Rosand, MD; Larry B. Goldstein, MD; Karen L. Furie, MD; Piero Verro, MD; S. Claiborne Johnston, MD, PhD; Frank R. Sharp, MD; Charles S. DeCarli, MD; Dazhi Liu, PhD ........................................... 2750

Retinal Vascular Calibers and the Risk of Intracerebral Hemorrhage and Cerebral Infarction: The Rotterdam Study
Renske G. Wieberdink, MD; M. Kamran Ikram, MD, PhD; Peter J. Koudstaal, MD, PhD; Albert Hofman, MD, PhD; Johannes R. Vingerling, MD, PhD; Monique M.B. Breteler, MD, PhD ........................................... 2757

Age–Period–Cohort Analysis of Stroke Incidence in Dijon From 1985 to 2005
Meheni Khellaf, MD; Catherine Quantin, MD; Philippe d’Athis, PhD; Mariane Fassa, PhD; Valérie Jooste, PhD; Marie Hervieu, MD; Maurice Giroud, MD; Yannick Béjot, MD ........................................... 2762

Age- and Gender-Specific Prevalence of Cardiovascular Risk Factors in 40 102 Patients With First-Ever Ischemic Stroke: A Nationwide Danish Study
Klaus Kaas Andersen, MS, PhD; Zorana Jovanovic Andersen, PhD; Tom Skyhøj Olsen, MD, PhD ........................................... 2768
Predictors of Subarachnoid Hemorrhage in Acute Ischemic Stroke With Endovascular Therapy
Zhong-Song Shi, MD; David S. Liebeskind, MD; Yince Loh, MD; Jeffrey L. Saver, MD; Sidney Starkman, MD; Paul M. Vespa, MD; Nestor R. Gonzalez, MD; Satoshi Tateshima, MD; Reza Jahan, MD; Lei Feng, MD; Chad Miller, MD; latisha K. Ali, MD; Bruce Ovbiagele, MD; Doogin Kim, MD; Gary R. Duckwiler, MD; Fernando Viñuela, MD; UCLA Endovascular Stroke Therapy Investigators ................................................................. 2775

Cerebral Microbleeds in the Elderly: A Pathological Analysis
Mark Fisher, MD; Samuel French, MD; Ping Ji, MD; Ronald C. Kim, MD ................................................................. 2782

Predicting Risk of Perioperative Death and Stroke After Carotid Endarterectomy in Asymptomatic Patients: Derivation and Validation of a Clinical Risk Score
Linda Calvillo-King, MD, MPH; Lei Xuan, MS; Song Zhang, PhD; Stanley Tuhrim, MD; Ethan A. Halm, MD, MPH ................................................................. 2786

Low Cerebral Blood Volume Is Predictive of Diffusion Restriction Only in Hyperacute Stroke
Michael Knash, MD; Adrian Tsang, BASc; Bilal Hameed, MD; Monica Saini, MD; Thomas Jeerakathil, MD, MSc; Christian Beaulieu, Phd; Derek Emery, MD, MSc; Kenneth Butcher, MD, PhD .......................... 2795

Hypertension and Cerebral Diffusion Tensor Imaging in Small Vessel Disease
Rob A.R. Gons, MD; Karlijn F. De Laat, MD; Anouk G.W. van Norden, MD; Lucas J.B. van Oudheusden, MD; Inge W.M. van Udum, MD; David G. Norris, PhD; Marcel P. Zwiers, PhD; Frank-Erik de Leeuw, MD, PhD .... 2801

White Matter Hyperintensity Burden and Susceptibility to Cerebral Ischemia
Natalia S. Rost, MD; Kaitlin Fitzpatrick, ScB; Alessandro Biffi, MD; Allison Kanakis, BS; William Devan, BS; Christopher D. Anderson, MD; Lynelle Cortellini, MS; Karen L. Furie, MD, MPH; Jonathan Rosand, MD, MSc .... 2807

Lenticulostriate Arterial Lumina Are Normal in Cerebral Autosomal-Dominant Arteriopathy With Subcortical Infarcts and Leukoencephalopathy: A High-Field In Vivo MRI Study
Michael K. Liem, MD; Jeroen van der Grond, Phd; Maarten J. Versluis, MSc; Joost Haan, MD, PhD; Andrew G. Webb, Phd; Michel D. Ferrari, MD, PhD; Mark A. van Buchem, MD, PhD; Saskia A.J. Lesnik Obersteiner, MD, PhD .... 2812

Maps of Time to Maximum and Time to Peak for Mismatch Definition in Clinical Stroke Studies Validated With Positron Emission Tomography
Olivier Zaro-Weber, MD; Walter Moeller-Hartmann, MD; Wolf-Dieter Heiss, MD; Jan Sobesky, MD ................................................................. 2817

Diversity of Single Small Subcortical Infarctions According to Infarct Location and Parent Artery Disease: Analysis of Indicators for Small Vessel Disease and Atherosclerosis
Hyun-Wook Nah, MD; Dong-Wha Kang, MD, PhD; Sun U. Kwon, MD, PhD; Jong S. Kim, MD, PhD ................................................................. 2822

Residual Vessel Length on Magnetic Resonance Angiography Identifies Poor Responders to Alteplase in Acute Middle Cerebral Artery Occlusion Patients: Exploratory Analysis of the Japan Alteplase Clinical Trial II
Teruyuki Hirano, MD; Makoto Sasaki, MD; Etsuro Mori, MD; Kazuo Minematsu, MD; Jyoji Nakagawara, MD; Takenori Yamaguchi, MD; for the Japan Alteplase Clinical Trial II Group ................................................................. 2828

Asymptomatic Hemorrhagic Transformation of Infarction and Its Relationship With Functional Outcome and Stroke Subtype: Assessment From the Tinzaparin in Acute Ischaemic Stroke Trial
Timothy J. Englund, MRCP(UK); Philip W.W. Bath, FRCP, FRCP; Gillian M. Sare, MRCP(UK); Chamilia Geeganage, MB, BS, MSc; Thierry Moulin, MD; Desmond O’Neill, FRCPI; France Wörmant, MD; Hanne Christensen, MD, PhD; Didier Leys, MD; E. Bernd Ringelstein, MD; on behalf of the FAIST Investigators ................................................................. 2834

Influence of Age on Outcome From Thrombolysis in Acute Stroke: A Controlled Comparison in Patients From the Virtual International Stroke Trials Archive (VISTA)
Nishant Kumar Mishra, MBBS; Hans-Christoph Diener, MD, PhD; Patrick D. Lyden, MD, FAHA, FAAN; Erich Bluhmki, Phd; Kennedy R. Lees, MD, FRCP, for the VISTA Collaborators ................................................................. 2840

Utility of Dysphagia Screening Results in Predicting Poststroke Pneumonia
Kamakshi Lakshminarayan, MD, PhD; Albert W. Tsai, PhD, MPH; Xin Tong, MPH; Gabriela Vasquez, PhD; James M. Peacock, PhD; Mary G. George, MD, MPH; Russell V. Luepker, MD, MS; David C. Anderson, MD ........ 2849

Endovascular Treatment of Very Small Unruptured Aneurysms: Rate of Procedural Complications, Clinical Outcome, and Anatomical Results
Laurent Pierot, MD, PhD; Coralie Barbe, MD; Laurent Spelle, MD, PhD; ATENA investigators ................................................................. 2855

Optimal Timing of Resumption of Warfarin After Intracranial Hemorrhage
Anmar Majeed, MD; Yang-Ki Kim, MD; Robin S. Roberts, PhD; Margareta Holmström, MD, PhD; Sam Schulman, MD, PhD ................................................................. 2860
Weight Approximation in Stroke Before Thrombolysis: The WAIST-Study: A Prospective Observational “Dose-Finding” Study
Lorenz Brewer, MD; Tim Nowe, MD; Hagen B. Hutner, MD; Christian Blinzler, MD; Rainer Kollmar, MD; Peter D. Schellinger, MD; Stefan Schwab, MD; Martin Köhrmann, MD ........................................................................................................ 2867

Study Design of the CLOSURE I Trial: A Prospective, Multicenter, Randomized, Controlled Trial to Evaluate the Safety and Efficacy of the STARFlex Septal Closure System Versus Best Medical Therapy in Patients With Stroke or Transient Ischemic Attack Due to Presumed Paradoxical Embolism Through a Patent Foramen Ovale
Anthony J. Furlan, MD; Mark Reisman, MD; Joseph Massaro, PhD; Laura Mauri, MD, MSc; Harold Adams, MD; Gregory W. Albers, MD; Robert Felberg, MD; Howard Herrmann, MD; Saibal Kar, MD; Michael Landzberg, MD; Albert Raizner, MD; Lawrence Wechsler, MD; for the CLOSURE I Investigators ........................................................................................................ 2872

Enhanced Detection of Paroxysmal Atrial Fibrillation by Early and Prolonged Continuous Holter Monitoring in Patients With Cerebral Ischemia Presenting in Sinus Rhythm
Raul Stahenberg, MD; Mark Weber-Kräger; Joachim Seegers, MD; Frank Edelmann, MD; Rosine Lahno; Beatrice Haase; Meinhard Mende, PhD; Janin Wohlfahrt, MD; Pawel Kermer, MD; Dirk Vollmann, MD; Gerd Hasenfuß, MD; Klaus Gröschel, MD; Rolf Wachter, MD ........................................................................................................ 2884

Brain Glucose Metabolism in Vascular White Matter Disease With Dementia: Differentiation From Alzheimer Disease
Belen Pascual, PhD; Elena Prieto, PhD; Javier Arbizu, MD, PhD; Josep Marti-Climent, PhD; Jorge Olier, MD, PhD; Joseph C. Masdeu, MD, PhD ........................................................................................................ 2889

Hepatitis C Virus Infection and Increased Risk of Cerebrovascular Disease
Mei-Hsuan Lee, MSc, PhD; Hwai-I Yang, PhD; Chih-Hao Wang, MD, PhD; Chin-Lan Jen, MSc; Shiou-Hwei Yeh, PhD; Chun-Jen Liu, MD, PhD; San-Lin You, PhD; Wei J. Chen, MD, ScD; Chien-Jen Chen, ScD ........................................................................................................ 2894

Cerebral Oxygenation in Preterm Infants With Germinal Matrix–Intraventricular Hemorrhages
Elise A. Verhagen, BSc; Hendrik J. ter Horst, MD; Paul Keating, MD; Albert Martijn, MD, PhD; Koenraad N.J.A. Van Braeckel, PhD; Arend F. Bos, MD, PhD ........................................................................................................ 2901

Exertion Fatigue and Chronic Fatigue Are Two Distinct Constructs in People Post-Stroke
Benjamin Y. Tseng, PhD; Sandra A. Billinger, PT, PhD; Byron J. Gajewski, PhD; Patricia M. Kluding, PT, PhD ........................................................................................................ 2908

Impaired Leg Vasodilatory Function After Stroke: Adaptations With Treadmill Exercise Training
Frederick M. Ivey, PhD; Charlene E. Hafer-Macko, MD; Alice S. Ryan, PhD; Richard F. Macko, MD ........................................................................................................ 2913

Cost of Illness in Subarachnoid Hemorrhage: A German Longitudinal Study
Richard Dodel, MD; Yaroslav Winter, MD; Florian Ringel, MD; Annika Spotte, MD; Nadir Gharevi, MD; Ines Müller, MSc; Thomas Klockgether, MD; Johannes Schramm, MD; Horst Urbach, MD; Bernhard Meyer, MD ........................................................................................................ 2918

Patient-Level and Hospital-Level Determinants of the Quality of Acute Stroke Care: A Multilevel Modeling Approach
Mathew J. Reeves, PhD; Julia Gargano, PhD; Kimberly S. Maier, PhD; Joseph P. Broderick, MD; Michael Frankel, MD; Kenneth A. LaBresh, MD; Charles J. Moomaw, PhD; Lee Schwamm, MD ........................................................................................................ 2924

Psychosocial Problems, Quality of Life, and Functional Independence Among Indian Stroke Survivors
Rinu Susan Raju, MA, MPhil; Prabhakaran S. Sarma, PhD; Jeyaraj D. Pandian, MD, DM ........................................................................................................ 2932

Basic Sciences
Early Protective Effect of Bone Marrow Mononuclear Cells Against Ischemic White Matter Damage Through Augmentation of Cerebral Blood Flow
Youshi Fujita, MD; Masafumi Ihara, MD; Takashi Usuki, MD; Hideyo Hirai, MD; Shinae Kizaka-Kondoh, PhD; Masahiro Hiraoka, MD; Hidefumi Ito, MD; Ryosuke Takahashi, MD ........................................................................................................ 2938

Modulation of Fate Determinants Olig2 and Pax6 in Resident Glia Evokes Spiking Neuroblasts in a Model of Mild Brain Ischemia
Golo Kronenberg, MD; Karen Gertz, MD; Giselle Cheung, PhD; Annalisa Buffo, PhD; Helmut Ketenmann, PhD; Magdalena Götz, PhD; Matthias Endres, MD ........................................................................................................ 2944

Functional Occurrence of the Interaction of Tissue Plasminogen Activator With the NR1 Subunit of N-Methyl-D-Aspartate Receptors During Stroke
Richard Macrez, MSc; Lauret Bezin, PhD; Brigitte Le Mauff, MD; Carine Ali, PhD; Denis Vivien, PhD ........................................................................................................ 2950

Enhanced Detection of Paroxysmal Atrial Fibrillation by Early and Prolonged Continuous Holter Monitoring in Patients With Cerebral Ischemia Presenting in Sinus Rhythm
Raul Stahenberg, MD; Mark Weber-Kräger; Joachim Seegers, MD; Frank Edelmann, MD; Rosine Lahno; Beatrice Haase; Meinhard Mende, PhD; Janin Wohlfahrt, MD; Pawel Kermer, MD; Dirk Vollmann, MD; Gerd Hasenfuß, MD; Klaus Gröschel, MD; Rolf Wachter, MD
The Cannabinoid WIN55212-2 Promotes Neural Repair After Neonatal Hypoxia–Ischemia
David Fernández-López, PhD; Jesús M. Pradillo, PhD; Isaac García-Yébenes, BSc; José A. Martínez-Orgado, MD, PhD; Marí a A. Moro, PhD; Ignacio Lizasoain, MD, PhD

Brief Reports

Burden Among Stroke Caregivers: Results of a Community-Based Study From Kolkata, India
Sujata Das, PhD; Avijit Hazra, MD; Biman Kanti Ray, DM; Malay Ghosal, MD; Tapas Kumar Banerjee, FRCP; Trishit Roy, DM; Arijit Chaudhuri, PhD; Deepak K. Raut, MD; Shyamal Kumar Das, DM; Martin Köhrmann, MD; Peter D. Schellinger, MD

Influence of Prophylactic, Endovascularly Based Normothermia on Inflammation in Patients With Severe Cerebrovascular Disease: A Prospective, Randomized Trial
Gregor Broessner, MD; Peter Lackner, MD; Marlene Fischer, MD; Ronny Beer, MD; Raimund Helbok, MD; Bettina Pfau sel, MD; Dietmar Schneider, MD; Erich Schmutzhard, MD

Sleep Apnea in Patients With Transient Ischemic Attack and Minor Stroke: Opportunity for Risk Reduction of Recurrent Stroke?
Wesley Chan, BHS; Shelagh B. Coutts, MD; Patrick Hanly, MD

Hemostatic Proteins and Their Association With Hematoma Growth in Patients With Acute Intracerebral Hemorrhage
Joan Martí-Fàbregas, PhD; Montserrat Borrell, PhD; Yolanda Silva, PhD; Raquel Delgado-Mederos, PhD; Sergi Martínez-Ramírez, MD; Manuel de Juan-Delago, MD; Isabel Tirado, PhD; Aida Alejandre, MD; Rebecca Marín, RN; Josep-Lluís Martí-Vilalta, PhD; Jordi Fontcuberta, PhD

Connective Tissue Growth Factor Is Associated With a Stable Atherosclerotic Plaque Phenotype and Is Involved in Plaque Stabilization After Stroke
Jan Willem Leeu wiss, MD; Tri Q. Nguyen, MD, PhD; Maarten G.J. Theunissen, MD; Wouter Peeters, MD, PhD; Roel Goldscha meding, MD, PhD; Gerard Pasterkamp, MD, PhD; Aryan Vink, MD, PhD

Reduced Tongue Pressure Against the Hard Palate on the Paralyzed Side During Swallowing Predicts Dysphagia in Patients With Acute Stroke
Nobuko Hirota, MD; Kuni Konaka, MD, PhD; Takahiro Ono, DDS, PhD; Kenichi Tamine, DDS, PhD; Jugo Kondo, DDS; Kazuhiro Hori, DDS, PhD; Yoko Yoshimuta, DDS; Yoshinobu Maeda, DDS, PhD; Saburo Sakoda, MD, PhD; Hiroaki Naritomi, MD, PhD

Comments and Opinions

Testing for Inherited Thrombophilias in Arterial Stroke: Can It Cause More Harm Than Good?
Jane G. Morris, MD; Swaraj Singh, MD; Marc Fisher, MD

The Safety of Driving a Commercial Motor Vehicle After a Stroke
Meheroz H. Rabadi, MD, MRCPI; Abiodun Akinwuntan, PhD; Philip Gorelick, MD, MPH, FACP

Progress Review

Personalized Approaches to Clopidogrel Therapy: Are We There Yet?
Christopher D. Anderson, MD; Alessandro Biffi, MD; Steven M. Greenberg, MD, PhD; Jonathan Rosand, MD, MSc

Controversies in Stroke

Pro: Intravenous Tissue Plasminogen Activator in Stroke Patients With Rapid, Complete Recovery During Evaluation (Transient Ischemic Attack) and Evidence of Middle Cerebral Artery Occlusion
Martin Köhrmann, MD; Peter D. Schellinger, MD

No-Go to Tissue Plasminogen Activator for Transient Ischemic Attack
David S. Liebeskind, MD
Management of Acute Stroke Patients With Rapidly Resolving Deficits and Persistent Vascular Occlusion: A Real Clinical Equipoise
Magdy H. Selim, MD, PhD; Carlos A. Molina, MD, PhD

Letters to the Editor

Reliability of Structured Modified Rankin Scale Assessment
Terence J. Quinn, MD; Kate McArthur, MRCP; Jesse Dawson, MD; Matthew R. Walters, MD; Kennedy R. Lees, MD

Response to Letter by Quinn et al
Jeffrey L. Saver, MD; Bogdan Filip, MD; Scott Hamilton, PhD; Anna Janes, RN; Sharon Craig, RN; Michelle Cho, BS; Robin Conwit, MD; Sidney Starkman, MD

Surgical or Medical Management for Asymptomatic Carotid Stenosis
Dimiter Ivanov Hadjie, MD, PhD, DMSc; Petya Pencheva Mineva, MD, PhD

Ongoing Randomized Controlled Trials Comparing Interventional Methods and Optimal Medical Treatment in the Treatment of Asymptomatic Carotid Stenosis
Tilmann Reiff, MD; Dittmar Boekler, MD; Michael Boehm, MD; Hartmut Bruckmann, MD; Eike Sebastian Debus, MD; Hans-Henning Eckstein, MD; Jens Fiehler, MD; Gustav Fraedrich, MD; Michael Hennerici, MD; Olav Jansen, MD; Werner Lang, MD; Ulrich Mansmann, PhD; Klaus Mathias, MD; Harald Mudra, MD; E. Bernd Ringelstein, MD; Peter Arthur Ringleb, MD; Juerg Schmidli, MD; Robert Stingele, MD; Ralf Zahn, MD; Werner Hacke, MD

Response to Letters by Reiff et al and Hadjie and Mineva
Karen Woo, MD; Joy Garg, MD; Ralph B. Dilley, MD; Robert J. Hye, MD

Correction

On the cover: The illustration is taken from an article in this issue “Maps of Time to Maximum and Time to Peak for Mismatch Definition in Clinical Stroke Studies Validated With Positron Emission Tomography” by Zaro-Weber et al (Stroke. 2010;41:2817–2821).