Late-Breaking Science Oral Abstracts

Thursday, February 12, 2015, 1:30 pm - 3:00 pm

LATE-BREAKING SCIENCE abstracts/studies presented at the INTERNATIONAL STROKE CONFERENCE 2015:

For late-breaking science being presented at ISC 2015, the embargo lifts when the first presentation begins in the scientific session in which the abstract is being presented: either 11 am CST on Wednesday, Feb. 11; 6:15 pm CST on Wednesday, Feb. 11; 10:55 am CST on Thursday, Feb. 12; 1:30 pm CST on Thursday, Feb. 12; or 11:30 am CST on Friday, Feb. 13). News media activities promoting late-breaking science are under embargo until the times noted above.

Presentation Number: LB8

Publishing Title: Efficacy And Safety of Aspirin For Primary Stroke Prevention In Elderly Patients With Vascular Risk Factors: Subanalysis Of Japanese Primary Prevention Project (jppp)

Author Block: Shinichiro Uchiyama, Clinical Res Ctr for Med, Intl Univ of Health and Welfare, Tokyo, Japan; Naoki Ishizuka, Cancer Inst Hosp, Tokyo, Japan; Kazuyuki Shimada, Shin-Oyama City Hosp, Tochigi, Japan; Tamio Teramoto, Teikyo Univ, Tokyo, Japan; Tsutomu Yamazaki, The Univ of Tokyo Hosp, Tokyo, Japan; Shinichi Oikawa, Fukujyuji Hosp, Tokyo, Japan; Masahiro Sugawara, Sugawara Medical Clinic, Tokyo, Japan; Katsuyuki Ando, Kitamura Memorial Clinic, Tokyo, Japan; Mitsuru Murata, Keio Univ Sch of Med, Tokyo, Japan; Kenji Yokoyama, Tokai Univ Hachioji Hosp, Tokyo, Japan; Kazuo Minematsu, Natl Cerebral and Cardiovascular Res Ctr, Osaka, Japan; Masayasu Matsumoto, Hiroshima Univ, Hiroshima, Japan; Yasuo Ikeda, Waseda Univeristy, Tokyo, Japan

Abstract Body: The effect of aspirin on primary prevention of stroke is conflicting among clinical trials conducted in Western countries, and there is no data available on the effect of aspirin in Asian population at higher risk of intracranial hemorrhage (ICH) than Caucasian population. The objective of this study was to analyze the effect of aspirin on the risk of stroke and ICH for primary prevention in the Japanese Primary Prevention Project (JPPP). JPPP was a multicenter, open-label, randomized, parallel-group trial. A total of 14,464 patients, aged 60-85 years, presenting with hypertension, dyslipidemia and/or diabetes mellitus participated in the study and were followed for up to 6.5 years. Patients were randomized 1:1 to receive 100 mg of aspirin once daily or no aspirin in addition to ongoing medications. Median duration of follow-up was 5.02 years. The cumulative rate of fatal or non-fatal stroke (hemorrhagic or ischemic stroke) was similar with aspirin (2.068%; 95% CI, 1.750-2.443) and no aspirin (2.299%; 95% CI, 1.963-2.692) at 5 years; the estimated hazard ratio (HR) was 0.927 (95% CI 0.741-1.160; P = .509). Aspirin non-significantly reduced the incidence of ischemic stroke (HR 0.783; 95% CI 0.606-1.012; P = .061) compared with no aspirin, while non-significantly increasing the risk of ICH (HR 1.463; 95% CI 0.956-2.237; P = .078). Cox regression to calculate risk score in all patients showed that independent factors for the risk of stroke were age >70 years (HR 2.207; 95% CI, 1.718-2.836), smoking (HR 1.513; 95% CI 1.111-2.061), and diabetes (HR 1.555, 95% CI 1.237-1.954). In conclusions, aspirin did not show any net clinical benefit for primary prevention of stroke in the elderly Japanese patients with vascular risk factors, while age >70 years, smoking and diabetes are risk factors for stroke in these patients regardless treatment with or without aspirin.

Author Disclosure Block: **S. Uchiyama:** Research Grant; Modest; Bayer, Boehringer Ingelheim, Daiichi Sankyo, Otsuka, Sanofi. Honoraria; Modest; Boehringer Ingelheim, Daiichi Sankyo, Daiichi Sankyo. Honoraria; Significant; Bayer, Otsuka. **N. Ishizuka:** None. **K. Shimada:** Research Grant; Modest; Waksman Foundation. Honoraria; Modest; Bayer. **T. Teramoto:** Research Grant; Modest; Bayer. Honoraria; Modest; Bayer. **T. Yamazaki:** Research Grant; Modest; Astra Zeneca, Daiichi Sankyo, Dainippon Sumitomo, Kowa, MSD, Takeda, Kyowa Hakko Kirin, Mitsubishi Tanabe, Pfizer. Honoraria; Modest; Astra Zeneca, Daiichi Sankyo, Dainippon Sumitomo, Kowa, Mochida, Merck Sharp & Dohme, Novartis, Sanofi, Shionogi, Takeda, Mitsubishi Tanabe, Pfizer. **S. Oikawa:** None. **M. Sugawara:** None. **K. Ando:** Research Grant; Modest; Boehringer Ingelheim, Daiichi Sankyo. Speakers' Bureau; Modest; Astellas, Boehringer Ingelheim, Daiichi Sankyo, J-milk, Mochida. **M. Murata:** Research Grant; Modest; Daiichi Sankyo, Sanofi. Honoraria; Modest; Pfizer. **K. Yokoyama:** Research Grant; Modest; Bristol-Myer Squibb, Chugai Seiyaku, Nihon Shinyaku, Pfizer.

Honoraria; Modest; Celgene, Chugai Seiyaku, Janssen, Nippon Shinyaku, Novartis. **K. Minematsu:** Honoraria; Modest; Mitsubishi Tanabe, Kyowa Hakk Kirin, Sanofi, Otsuka, Bayer, Asteras, Daiici Sankyo, Astra Zeneca, Boehringer Ingelheim, Pfizer, EPS, Stryker, Medicos Hirata, Sawai. **M. Matsumoto:** Honoraria; Modest; Tsumura. Honoraria; Significant; Asteras, Eizai, Otsuka, Takeda, Daiichi Sankyo, Novarits, Bayer, Pfizer, BMS, Sanofi, Boehringer Ingelheim, Mochida, MDA. **Y. Ikeda:** Consultant/Advisory Board; Modest; Astra Zeneca, Bayer, Daiichi Sankyo, Glaxo Smith Kline, Sanofi.

LATE-BREAKING SCIENCE abstracts/studies presented at the INTERNATIONAL STROKE CONFERENCE 2015:

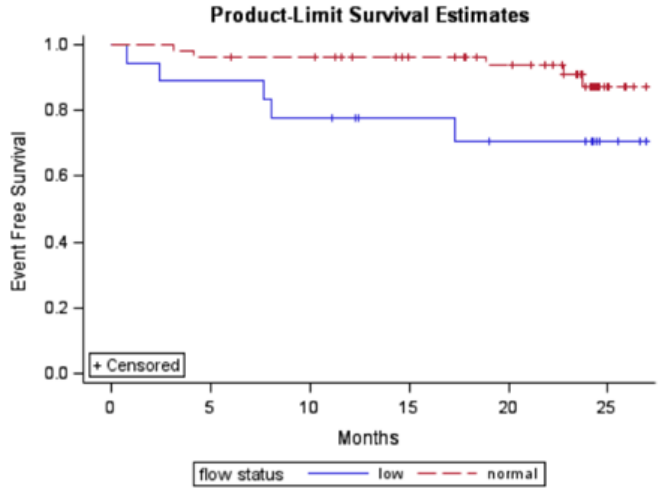
For late-breaking science being presented at ISC 2015, the embargo lifts when the first presentation begins in the scientific session in which the abstract is being presented: either 11 am CST on Wednesday, Feb. 11; 6:15 pm CST on Wednesday, Feb. 11; 10:55 am CST on Thursday, Feb. 12; 1:30 pm CST on Thursday, Feb. 12; or 11:30 am CST on Friday, Feb. 13). News media activities promoting late-breaking science are under embargo until the times noted above.

Presentation Number: LB9

Publishing Title: Impact of Hemodynamics on Stroke Risk in Symptomatic Vertebrobasilar Disease: Results of the VERiTAS Study

Author Block: Sepideh Amin-Hanjani, Dilip K. Pandey, Linda Rose-Finnell, Xinjian Du, DeJuran Richardson, Keith R. Thulborn, Univ of Illinois at Chicago, Chicago, IL; Mitchell S. Elkind, Columbia Univ, New York, NY; Gregory J. Zipfel, Washington Univ in St. Louis, St. Louis, MO; David S. Liebeskind, Univ of California, Los Angeles, CA; Frank L. Silver, Univ of Toronto, Toronto, ON, Canada; Scott E. Kasner, Univ of Pennsylvania, Philadelphia, PA; Victor Aletich, Univ of Illinois at Chicago, Chicago, IL; Louis R. Caplan, Harvard, Boston, MA; Colin P. Derdeyn, Washington Univ in St. Louis, St. Louis, MO; Philip B. Gorelick, Michigan State Univ, Grand Rapids, MI; Fady T. Charbel, Univ of Illinois at Chicago, Chicago, IL; The VERiTAS Study Group

Abstract Body: Introduction: Atherosclerotic vertebrobasilar disease (VBD) is a significant etiology of posterior circulation stroke, with regional hypoperfusion as an important potential contributor to stroke risk. To examine the role of hemodynamic compromise in VBD, a prospective observational study, Vertebrobasilar Flow Evaluation and Risk of Transient Ischemic Attack and Stroke (VERiTAS), was conducted.
Methods: Patients with recent vertebrobasilar (VB) TIA or stroke and ≥50% atherosclerotic stenosis or occlusion in vertebral and/or basilar arteries were enrolled at 5 centers. Large vessel flow in the VB territory was assessed using quantitative MRA, and patients were designated as low flow or normal flow based on distal territory regional flow, incorporating collateral capacity. Patients underwent standard medical management and blinded follow-up assessment, with primary outcome of VB territory stroke.
Results: The cohort (n=73, 45% female) had a mean age of 66 (range 40 to 90) years; two thirds presented with ischemic stroke. Flow status was found to be a significant predictor of subsequent VB stroke (p=0.04, Figure), with a 12 and 24 month event free survival of 78 % and 71% respectively in the low flow group versus 96 % and 87 % in the normal flow group. On multivariate analysis with Cox proportional hazards adjusting for stroke risk factors the hazard ratio for the low flow group was 18 (95% CI 3.1 to 102.7, p =0.001). Medical risk factor management at 6 month intervals was similar between low and normal flow patients. Flow status remained a significant predictor even when adjusting for disease severity and location.
Conclusions: Distal flow status in the posterior circulation is a robust predictor of subsequent VB stroke risk. Large vessel flow measurements represent a useful noninvasive method for risk stratification in patients with symptomatic VBD.



Author Disclosure Block: **S. Amin-Hanjani:** Research Grant; Modest; GE Healthcare, VasSol, Inc.. Research Grant; Significant; NIH/NINDS. **D.K. Pandey:** Research Grant; Significant; NIH/NINDS; CDC. **L. Rose-Finnell:** None. **X. Du:** None. **D. Richardson:** None. **K.R. Thulborn:** Ownership Interest; Significant; Thulborn Assoc. (owner). **M.S.V. Elkind:** None. **G.J. Zipfel:** Research Grant; Modest; AHA, Hope Center for Neurological Disorders; Barnes Jewish Hospital Foundation. Research Grant; Significant; NIH. **D.S. Liebeskind:** None. **F.L. Silver:** Speakers' Bureau; Modest; Boehringer Ingelheim Canada, Servier Canada. Consultant/Advisory Board; Modest; Bayer Canada, Pfizer / Bristol-Myers Squibb. **S.E. Kasner:** None. **V. Aletich:** Consultant/Advisory Board; Modest; Codman, EV3, Stryker, Pneumbra. **L.R. Caplan:** None. **C.P. Derdeyn:** Research Grant; Significant; NIH/NINDS, MicroVention Inc.. Ownership Interest; Modest; Pulse Therapeutics. Consultant/Advisory Board; Modest; Pulse Therapeutics. **P.B. Gorelick:** Research Grant; Significant; Lundbeck Inc. **F.T. Charbel:** Ownership Interest; Significant; VasSol, Inc..

LATE-BREAKING SCIENCE abstracts/studies presented at the INTERNATIONAL STROKE CONFERENCE 2015:

For late-breaking science being presented at ISC 2015, the embargo lifts when the first presentation begins in the scientific session in which the abstract is being presented: either 11 am CST on Wednesday, Feb. 11; 6:15 pm CST on Wednesday, Feb. 11; 10:55 am CST on Thursday, Feb. 12; 1:30 pm CST on Thursday, Feb. 12; or 11:30 am CST on Friday, Feb. 13). News media activities promoting late-breaking science are under embargo until the times noted above.

Presentation Number: LB10

Publishing Title: Number Needed to Treat to Benefit and Harm for Endovascular Therapy in Acute Ischemic Stroke: Joint Outcome Table Analysis of the MR CLEAN Trial

Author Block: May Nour, David S. Liebeskind, Latisha K. Ali, Gary Duckwiler, Reza Jahan, Satoshi Tateshima, Nestor Gonzalez, Viktor Szeder, Jeffery L. Saver, Univ of California, Los Angeles, Los Angeles, CA

Abstract Body: Background: The MR CLEAN study is the first trial of thrombectomy with 2nd-generation devices, and the first to demonstrate improved outcomes compared with medical therapy (including IV tPA). We sought to delineate the clinical relevance of treatment effects observed in MR CLEAN, using the size effect metrics of number needed to treat to benefit (NNTB), number needed to treat to harm (NNTH), benefit per hundred (BPH) treated, and harm per hundred (HPH) treated. Methods: For all possible dichotomizations of the modified Rankin Scale of global disability (mRS), net NNTB was derived by taking the inverse of absolute risk difference, and net BPH by multiplying absolute risk difference by 100. For benefits and harms simultaneously across all 6 disability transitions on the mRS, NNTB, NNTH, BPH, and HPH estimates were derived using the: 1) Mann Whitney permutation test, 2) joint outcome table algorithmic specification and 3) joint outcome table specification by independent experts, including 3 stroke neurologists, 1 interventional neurologist, 2 interventional neuroradiologists, and 2 endovascular neurosurgeons. Results: For the 6 different dichotomizations of the mRS, net NNT values ranged from 6-100 and net benefit per hundred ranged from 1-29. The prespecified secondary endpoint of MR CLEAN was mRS 0-2, alive and independent at 3 months. For this dichotomization, net NNTB was 7 and net benefit per hundred was 14. The prespecified primary endpoint of MR CLEAN was shift on mRS (less disability by 1 or more grades at 3 months). The Mann-Whitey permutation test indicated for such transitions across all levels of mRS disability, net NNTB was 3.4 and BPH 29. Expert specifications of the joint outcome table indicated a NNTB of 3.8, NNTH of 22.7, net NNTB 4.5, BPH of 27, HPH of 4.4, and net BPH of 22. Conclusions: Among patients with large vessel acute ischemic stroke, the use of endovascular therapy will result in 1 additional nondisabled outcome among every 7 patients treated and 1 additional less disabled outcome for every 3-5 patients treated. Among 100 patients treated with endovascular therapy, 14 more will have a nondisabled outcome and 22-29 will have a less disabled outcome. The magnitude of the treatment effect observed in the MR CLEAN trial is substantial.

Author Disclosure Block: M. Nour: None. **D.S. Liebeskind:** Consultant/Advisory Board; Modest; Stryker and Covidien. **L.K. Ali:** None. **G. Duckwiler:** Consultant/Advisory Board; Modest; Sequent Medical and Asahi Medical. Other; Modest; Pipeline Proctor for Covidien Medical. **R. Jahan:** Consultant/Advisory Board; Modest; Covidien and Medina Medical. **S. Tateshima:** Consultant/Advisory Board; Modest; Reverse Medical, Stryker Neurovascular, Blockade Medical, Silkroad Medical. **N. Gonzalez:** None. **V. Szeder:** None. **J.L. Saver:** Other; Modest; Dr. Saver is an employee of the University of California. The University of California, Regents receive funding for Dr Saver's services as a scientific consultant regarding trial design., The University of California, Regents receive funding for Dr Saver's services as a scientific consultant regarding trial design and conduct to Covidien, Stryker, BrainsGate, Pfizer & St. Jude Medical, Dr Saver has served as an unpaid site investigator in multicenter trials run by Lundbeck for which UC Regents received payments on basis of clinical trial contracts for the number of subjects enrolled, Dr. Saver serves as an unpaid consultant to Genentech advising on design & conduct of PRISMS trial;neither Univ. of California nor Dr. Saver received any payments for this voluntary unpaid service., The University of California has patent rights in retrieval devices for stroke..

LATE-BREAKING SCIENCE abstracts/studies presented at the INTERNATIONAL STROKE CONFERENCE 2015:

For late-breaking science being presented at ISC 2015, the embargo lifts when the first presentation begins in the scientific session in which the abstract is being presented: either 11 am CST on Wednesday, Feb. 11; 6:15 pm CST on Wednesday, Feb. 11; 10:55 am CST on Thursday, Feb. 12; 1:30 pm CST on Thursday, Feb. 12; or 11:30 am CST on Friday, Feb. 13). News media activities promoting late-breaking science are under embargo until the times noted above.

Presentation Number: LB11

Publishing Title: Device Closure In Patent Foramen Ovale And Stroke: A Meta-analysis Of Individual Patient Data From Randomized Trials

Author Block: David M Kent, Tufts Medical Ctr, Boston, MA; Issa J Dahabreh, Brown Univ, Providence, RI; Robin Ruthazer, Tufts Medical Ctr, Boston, MA; Anthony J Furlan, Univ Hosp - Case Medical Ctr, Cleveland, OH; Peter Jüni, Univ of Bern, Bern, Switzerland; Heinrich P Mattle, Univ Hosp, Bern, Switzerland; Bernhard Meier, Swiss Cardiovascular Ctr Bern Univ Hosp, Bern, Switzerland; David E Thaler, Tufts Medical Ctr, Boston, MA

Abstract Body: BACKGROUND:
There is controversy about the management of patients with cryptogenic stroke and patent foramen ovale (PFO). Three randomized clinical trials (RCTs) investigating two devices (STARFlex in CLOSURE I; Amplatzer PFO Occluder in RESPECT and PC trial) did not find statistically significant differences between device closure and medical therapy in these patients. We present the first pooled analysis of individual patient data from the three trials.
METHODS:
Methods were pre-specified and the study protocol was registered with PROSPERO (CRD42014013895). In main analyses we used data from all 3 trials; we also performed analyses limited to the 2 studies of the Amplatzer device. The primary outcome was a composite of stroke, transient ischemic attack, or death; the secondary outcome was stroke. We used stratified Cox regression models, both unadjusted (primary analysis) and covariate-adjusted (secondary analysis), and examined effects in pre-specified subgroups.
FINDINGS:
Among 2303 patients, device closure was not statistically significantly associated with the primary composite outcome (log-rank p-value = 0.052); the hazard ratio (HR) for closure was 0.69 (95% CI: 0.47 to 1.01), p=0.053. This effect became statistically significant on covariate adjustment: HR=0.68 (95% CI: 0.46 to 1.00); p=0.049. For the outcome of stroke, effects were stronger and all analyses showed statistically significant benefit for closure (Table), particularly when limited to trials of the Amplatzer device. Subgroup analyses did not identify statistically significant heterogeneity of treatment effects.
INTERPRETATION:
While the effect estimate on the primary composite outcome did not achieve statistical significance, device closure reduced recurrent stroke in patients with PFO and cryptogenic stroke.

Individual Participant Data Meta-Analysis Results(CLOSURE, RESPECT and PC Trial)

	Primary Composite Outcome		Recurrent Stroke	
Analysis	HR (95% CI)	p-value	HR (95% CI)	p-value
Log-Rank Test		0.0517		0.0407
Cox PH Model	0.69 (0.47 to 1.01)	0.0531	0.58 (0.34 to 0.98)	0.0433
Covariate-adjusted Cox PH model*	0.68 (0.46 to 1.00)	0.0491	0.58 (0.34 to 0.99)	0.0443

Analyses Limited To Trials Of The Amplatzer Device (RESPECT and PC Trial)

	Primary Composite Outcome		Recurrent Stroke	
Analysis	HR (95% CI)	p-value	HR (95% CI)	p-value
Log-Rank Test		0.0885		0.0103
Cox PH Model	0.63 (0.36 to 1.08)	0.0914	0.39 (0.19 to 0.82)	0.0133
Covariate-adjusted Cox PH model*	0.64 (0.37 to 1.11)	0.1150	0.41 (0.20 to 0.88)	0.0213

* Adjusted for: age, sex, race, coronary artery disease, diabetes, hypertension, hyperlipidemia, prior stroke, smoking status, index event (stroke versus transient ischemic attack), hypermobile septum, PFO shunt size (large versus small).
CI = confidence interval; HR = hazard ratio; PH = proportional hazards.

Author Disclosure Block: **D.M. Kent:** None. **I.J. Dahabreh:** None. **R. Ruthazer:** None. **A.J. Furlan:** None. **P. Jüni:** None. **H.P. Mattle:** Research Grant; Significant; St. Jude Medical. **B. Meier:** Research Grant; Significant; St. Jude Medical. Speakers' Bureau; Modest; St. Jude Medical. Honoraria; Modest; St. Jude Medical. Consultant/Advisory Board; Modest; St. Jude Medical. **D.E. Thaler:** Consultant/Advisory Board; Modest; Steering Committee, RESPECT Trial, AGA Medical (St. Jude).

LATE-BREAKING SCIENCE abstracts/studies presented at the INTERNATIONAL STROKE CONFERENCE 2015:

For late-breaking science being presented at ISC 2015, the embargo lifts when the first presentation begins in the scientific session in which the abstract is being presented: either 11 am CST on Wednesday, Feb. 11; 6:15 pm CST on Wednesday, Feb. 11; 10:55 am CST on Thursday, Feb. 12; 1:30 pm CST on Thursday, Feb. 12; or 11:30 am CST on Friday, Feb. 13). News media activities promoting late-breaking science are under embargo until the times noted above.

Presentation Number: LB12

Publishing Title: The Safety and Efficacy of Image- Guided Tran-sulcal Radial Corridors For Hematoma Evacuation: A Multicenter Study

Author Block: Mohamed Labib, UNIVERSITY OF OTTAWA, OTTAWA, ON, Canada; Gavin Brtiz, Houston Methodist Hosp, Houston, TX; Ronald Young, St. Vincent Hosp, Indianapolis, IN; Lloyd Zucker, Delray Medical Ctr, Boca Raton, FL; Mitesh Shah, IU Methodist Hosp Indianapolis, Indianapolis, IN; Charles G Kulwin, Indiana Univ, Indianapolis, IN; Anthony Maioriello, Clear Lake Regional, Webster, TX; JD Day, Univ of Arkansas for Medical Sciences, Little Rock, AR; Gary Gallia, Johns Hopkins Hosp, Baltimore, MD; Robert Kerr, Northshore LIJ Medical Group, Huntington, NY; Richard Rovin, Marquette General Hosp, Marquette, MI; Amin Kassam, Aurora St. Luke's Medical Ctr, Milwaukee, WI

Abstract Body: Introduction: Subcortical injury resulting from surgical management of Intraparenchymal hemorrhage (IPH) can be devastating. The present study evaluates safety and efficacy of a novel DTI-guided, exoscopic-assisted, radial transulcal approach to these lesions.
Methods: Minimally invasive Subcortical Parafascicular Access for Clot Evacuation (MiSPACE) is a standardized process designed for evacuating IPH. It incorporates 5 core competencies of image interpretation/ trajectory planning, dynamic navigation, atraumatic access, Extracorporeal optics, and automated atraumatic resection. Demographic, clinical, and radiological data of patients operated on over a 2-year period were collected and analyzed retrospectively. Ten neurosurgeons from 10 centers were trained through a CME accredited course to uniformly practice this technique.
Results: Thirty-five patients were identified (20M, 15F) with a mean age 57.5 years (range: 19-85). Mean GCS at presentation was 10.6 (SD= 3.16). Thalamus/ basal ganglion, left temporal, frontoparietal regions were involved in 51, 11, and 11% of patients, respectively. Hypertensive hemorrhage was presumptive diagnosis in 19 patients. Three had underlying AVMs. Mean hematoma volume and depth were 45.1cc (range: 7.5-170) and 2.06 cm (range: 0-7.5 cm), respectively. Mean time from ictus to surgery was 41.7 hours (median: 24). All cases were done in the operating room. Neuronavigation was used in 100% of cases. Degree of hematoma evacuation was: ≥ 90, 75-89, and 50-74% in 74, 20, and 5.7% of patients, respectively. Mean GCS at discharge was 13.6 (SD=1.98). Improvement in GCS was statistically significant (P<0.0001). There were no mortalities.
Conclusion: The minimally invasive subcortical parafascicular approach described is safe and effective for managing IPH when used in a standrized fashion. This approach represents a potentially important advancement for this patient population in whom surgical treatment options have been very limited.

Author Disclosure Block: M. Labib: None. **G. Brtiz:** None. **R. Young:** None. **L. Zucker:** None. **M. Shah:** Consultant/Advisory Board; Modest; Consultant Stryker Neuro/ ENT Division. **C.G. Kulwin:** None. **A. Maioriello:** None. **J. Day:** None. **G. Gallia:** None. **R. Kerr:** None. **R. Rovin:** None. **A. Kassam:** Ownership Interest; Modest; Synaptive Medical Shareholder. Consultant/Advisory Board; Modest; Consults as chair of NICO Scientific Advisory Board.

LATE-BREAKING SCIENCE abstracts/studies presented at the INTERNATIONAL STROKE CONFERENCE 2015:

For late-breaking science being presented at ISC 2015, the embargo lifts when the first presentation begins in the scientific session in which the abstract is being presented: either 11 am CST on Wednesday, Feb. 11; 6:15 pm CST on Wednesday, Feb. 11; 10:55 am CST on Thursday, Feb. 12; 1:30 pm CST on Thursday, Feb. 12; or 11:30 am CST on Friday, Feb. 13). News media activities promoting late-breaking science are under embargo until the times noted above.

Presentation Number: LB13

Publishing Title: Increased P-Wave Terminal Force in Lead V1 Predicts Cryptogenic and Cardioembolic Strokes: The Northern Manhattan Study

Author Block: Madeleine D. Hunter, Columbia Univ, New York, NY; Hooman Kamel, Weill Sch of Med, Cornell Univ, New York, NY; Yeseon P. Moon, Shadi Yaghi, Chensy Marquez, Ken Cheung, Marco Di Tullio, Columbia Univ, New York, NY; Peter M. Okin, Weill Cornell Sch of Med, Cornell Univ, New York, NY; Ralph L. Sacco, Univ of Miami, Miami, FL; Elsayed Z. Soliman, Wake Forest Sch of Med, Winston Salem, NC; Mitchell S. Elkind, Columbia Univ, New York, NY

Abstract Body: Background:
P-wave terminal force in EKG lead V1 (PTFV1), a measure of left atrial conduction, is a marker of left atrial dysfunction and has been associated with stroke risk. We hypothesized that PTFV1 would be associated with risk of cardioembolic and cryptogenic strokes in the absence of history of atrial fibrillation (AF).
Methods:
A case-cohort study was conducted in the Northern Manhattan Study, a prospective cohort study of stroke risk factors. PTFV1 was manually measured from baseline EKGs of participants in sinus rhythm who subsequently had ischemic strokes (cases, n=241) and a randomly selected subcohort (n=798). Hazard ratios and 95% confidence intervals (adj HR, 95%CI) for the association of PTFV1 with ischemic stroke and TOAST stroke subtypes were calculated using weighted Cox proportional hazards models after adjusting for demographics, history of AF, heart failure, diabetes, hypertension, smoking, and lipids.
Results:
PTFV1 was available for 975 participants: mean PTFV1 was 3933.6 (±2540.7) µV-ms in the subcohort and 4451.6 (±3368.2) µV-ms among stroke cases. The intra-rater (0.87, 95%CI 0.79-0.92) and inter-rater (0.69, 95%CI 0.45-0.80) reliabilities were good to excellent for measurement of PTFV1. After adjusting for traditional risk factors, PTFV1 was associated with increased risk of all ischemic strokes (adj HR 1.20 per standard deviation (SD) of PTFV1, 95% CI 1.03-1.39), and cryptogenic and cardioembolic strokes combined (adj HR 1.31 per SD of PTFV1, 95% CI 1.08-1.58). Results for cryptogenic and cardioembolic stroke subtypes considered individually were similar. There was no association with non-cardioembolic stroke subtypes. After excluding those with history of AF, results were similar (for all ischemic stroke, adjusted HR 1.24 per SD PTFV1, 95% CI 1.06-1.45; for combined cryptogenic/cardioembolic, adjusted HR 1.34 per SD PTFV1, 95% CI 1.11-1.63).
Conclusion:
Increased PTFV1, a marker of left atrial dysfunction, is associated with cryptogenic and cardioembolic stroke independent of history of AF and heart failure. Further studies are warranted to determine whether preventive strategies, like those used for patients with AF, may prevent ischemic stroke in those with increased PTFV1.

Author Disclosure Block: M.D. Hunter: None. **H. Kamel:** None. **Y.P. Moon:** None. **S. Yaghi:** None. **C. Marquez:** None. **K. Cheung:** None. **M. Di Tullio:** None. **P.M. Okin:** Consultant/Advisory Board; Significant; Novartis. **R.L. Sacco:** Consultant/Advisory Board; Modest; Boehringer-Ingelheim, Inc.. **E.Z. Soliman:** None. **M.S.V. Elkind:** Consultant/Advisory Board; Modest; BMS-Pfizer Partnership, Boehringer-Ingelheim, Inc., Daiichi-Sankyo, Janssen Pharmaceuticals, Biotelemetry.

LATE-BREAKING SCIENCE abstracts/studies presented at the INTERNATIONAL STROKE CONFERENCE 2015:

For late-breaking science being presented at ISC 2015, the embargo lifts when the first presentation begins in the scientific session in which the abstract is being presented: either 11 am CST on Wednesday, Feb. 11; 6:15 pm CST on Wednesday, Feb. 11; 10:55 am CST on Thursday, Feb. 12; 1:30 pm CST on Thursday, Feb. 12; or 11:30 am CST on Friday, Feb. 13). News media activities promoting late-breaking science are under embargo until the times noted above.

Presentation Number: LB14

Publishing Title: Vagus Nerve Stimulation Paired with Rehabilitation Improves Upper Limb Recovery after Chronic Ischemic Stroke

Author Block: Jesse D Dawson, Univ of Glasgow, Glasgow, United Kingdom; Navzer Engineer, David Pierce, MicroTransponder, Inc, Austin, TX; Teresa Kimberley, Univ of Minnesota, Minnesota, MN; Brent Tarver, MicroTransponder, Austin, TX; Anand Dixit, Newcastle Univ, Newcastle, United Kingdom; Matthew Walters, Univ of Glasgow, Glasgow, United Kingdom; Steven Cramer, Univ of California, Irvine, Irvine, CA

Abstract Body: A vagus nerve stimulation (VNS) based rehabilitation therapy has been developed by MicroTransponder. for patients with upper limb weakness after stroke. VNS paired with movement induced specific plasticity in rat motor cortex and improved upper limb function after induced ischemic stroke. VNS may exert these effects on neuroplasticity via activation of nucleus basalis and locus ceruleus neurons, which release acetylcholine and norepinephrine to cortical neurons. Our hypothesis is that short bursts of VNS paired with movements will drive plasticity and facilitate motor recovery after stroke.

A proof-of-concept, 20 subject, parallel, randomized, controlled pilot study assessed a chronic ischemic stroke population (9 VNS device plus rehabilitation subjects and 11 rehabilitation only subjects). The primary endpoints were safety, tolerability, and feasibility; secondary endpoints included measures of upper limb function (e.g., Upper Extremity Fugl Meyer (UEFM) score). Subjects had 18 in-clinic rehabilitation sessions. At each session, the subjects performed ~300-400 repetitions across several tasks that were goal-oriented, and intensive. For the VNS group, each movement was paired with a brief burst of VNS. The control group performed approximately the same number of movements; however no VNS was paired.

Subjects tolerated both the surgery and stimulation similarly to the commercially approved indications of VNS for epilepsy and depression. The therapy was well-tolerated, there were no significant compliance issues and no serious adverse events related to therapy. For UEFM, a ≥6 point increase from baseline was considered clinically meaningful. We observed a clinically meaningful improvement in UEFM from baseline to the post-therapy session in 67% of subjects in the VNS + rehabilitation group compared to 36% of subjects in the rehabilitation only group. The average improvement in UEFM for the VNS group was 8.7±5.7 (mean±std) points while the average change in the rehabilitation group was 3.0 ±6.1 points at the end of therapy.

VNS appears feasible and safe in adults with chronic stroke. The final results from the study will be available in November and will be available for first presentation at the ISC. A confirmatory pilot study is underway in the US.

Author Disclosure Block: J.D. Dawson: None. **N. Engineer:** Employment; Significant; Employee at MicroTransponder, Inc. **D. Pierce:** Employment; Significant; Employee at MicroTransponder, Inc. **T. Kimberley:** Consultant/Advisory Board; Modest; Consultant to MicroTransponder. **B. Tarver:** Employment; Significant; Employee at MicroTransponder. **A. Dixit:** None. **M. Walters:** None. **S. Cramer:** Consultant/Advisory Board; Modest; Consultant to MicroTransponder, Inc.