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Hot Spotting Medically Complex At-Risk Patients in an Urban Primary Care Residency Clinic

Glenda Sundberg

Chris Peters

Catherine de Grandville

Natalie Sorenson

Rinal Patel

Melissa Grube

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Recommended Citation

Background: The Stroke Network of Wisconsin (SNOW) scale, previously called the Pomona scale, was developed to predict large-vessel occlusions (LVO) in patients with acute ischemic stroke. The original study showed a high accuracy of this scale.

Purpose: We sought to externally validate the SNOW scale in an independent cohort.

Methods: The SNOW scale includes 3 items: gaze deviation, expressive aphasia, and neglect. The SNOW scale is positive if any one of these items is present. We retrospectively reviewed a large cohort of all acute stroke patients who presented within 24 hours after onset at Aurora Health Care (14 hospitals) from January 2015 to December 2016. We calculated SNOW scale, the Vision Aphasia and Neglect (VAN) scale, the Cincinnati Prehospital Stroke Severity Scale (CPSSS), the Los Angeles Motor Scale (LAMS), and the Prehospital Acute Stroke Severity (PASS) scale for all patients. The predictive performance of all scales and several National Institute of Health Stroke Scale (NIHSS) cutoffs ≥6 were determined and compared. LVO was defined by total occlusions involving the intracranial internal carotid artery, middle cerebral artery (M1), or basilar arteries.

Results: Among 2183 acute ischemic stroke patients, 1381 had vascular imaging and were included in the analysis. LVO was detected in 169 (12%). A positive SNOW scale had comparable accuracy to predict LVO as the CPSS and an NIHSS ≥6. With area under the receiver operating characteristics curve of 0.78, a positive SNOW scale had higher accuracy than VAN (0.67, P=0.001), LAMS ≥4 (0.62, P<0.001), and PASS ≥2 (0.69, P<0.001). A positive SNOW scale had sensitivity of 0.80, specificity of 0.76 to predict LVO, positive predictive value of 0.31, and negative predictive value of 0.96 for the detection of LVO versus CPSS ≥2 of 0.64, 0.87, 0.41, and 0.95, respectively.

Conclusion: In our large stroke network cohort, the SNOW scale has promising sensitivity, specificity, and accuracy to predict LVO. Future prospective studies in both prehospital and emergency room settings are warranted.

Differences in Metabolic Profile Between Right and Left Atria of Patients With Atrial Fibrillation

Larisa Emelyanova, Steven M. Komas, Susan Olet, Sean Ryan, Catherine Warner, Farhan Rizvi, Gracious R. Ross G, David C. Kress, Daniel P. O’Hair, Francis X. Downey

Center for Integrative Research on Cardiovascular Aging, Aurora Research Institute; Department of Biophysics, Medical College of Wisconsin; Cardiovascular and Thoracic Surgery, Aurora Medical Group

Background: Several studies have demonstrated genomic, morphological, and electrophysiological differences between the right atrium and left atrium, suggesting that dissimilar mechanisms may contribute to the development and progression of atrial fibrillation (AF). Therefore, differences in metabolic response to AF between atria are foreseeable. Given the complexity of AF development and progression, understanding AF-associated changes in metabolites in both atria will help in better clinical management of AF.

Purpose: To compare potential changes in metabolites in the right atrial (RAA) and left atrial (LAA) appendage tissue from patients with (AF+) and without (non-AF) history of AF.

Methods: RAA and LAA tissue from AF+ (n=20) and non-AF (n=20) patients undergoing elective open heart surgery at Aurora St. Luke’s Medical Center (Milwaukee, WI) was collected. The tissue was snap-frozen in liquid nitrogen and stored at -80°C. Metabolites were profiled in frozen tissue using high-performance liquid chromatography coupled to tandem mass spectrometry (LC-MS). Comparison between groups was done using the 2 sample t-test and Wilcoxon rank-sum test, with 5% level of significance. The study was approved by the local institutional review board.

Results: A total of 24 metabolites related to glycolysis and tricarboxylic acid cycle (TCA) were identified. The most significant AF-associated changes in metabolites were observed in RAA compared to LAA tissue. In AF+ patients, glycolysis metabolites’ level of glucose-6-phosphate (P<0.03) and