10-29-2018

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

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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 (CPSS), 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.

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

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Background: In the United States, 5% of patients incur 50% of health care costs. Hot spotting, a collaborative care approach, may improve patient outcomes and decrease health care costs among those considered to be super-users. Aurora Health Care may benefit from this concept has large potential to provide further future benefit and may be replicated elsewhere in the system. In 2018, our pilot efforts will be extended to two residency sites for further evaluation.

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

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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...
Background: Cryptococcus (C. gatti and C. neoformans) causes meningitis and pneumonia in immunocompromised and immunocompetent hosts, and several cases are diagnosed at Aurora Health Care each year. Cryptococcus is infrequently isolated from the environment, despite being the presumed infection source, with no known isolations in Wisconsin since 1964. C. gatti-endemic areas are expanding worldwide, and it is commonly isolated from tree hollows.

Purpose: To isolate pathogenic Cryptococcus from Wisconsin natural sites.

Methods: Samples were obtained from tree structures and natural and built surfaces in northern and southern Wisconsin (103 samples) and northeast Ohio (8) from April 2017 to December 2017. Cotton (38 samples) and liquid Amies elution swabs (73) swabs were used to collect material for incubation at 35°C (after first 18 samples were at 20°C) on Staib (birdseed) agar. Suspicious colonies were further incubated on Sabouraud dextrose and brain-heart infusion agar at 20°C and 37°C, respectively, and on urea agar. Colonies were further examined microscopically with India ink.

Results: Use of liquid Amies elution swabs and isolation at 35°C reduced background mold growth. Of 111 samples, 2 isolates of Cryptococcus-like yeast were identified from the same weeping willow tree in Greendale, Wisconsin. These tan isolates on Staib agar were very similar in appearance, grew at 37°C, and were urease-positive, but had thin, rather than broad, capsules. One isolate tested at ACL Laboratories (Milwaukee, WI) using matrix-assisted laser desorption/ionization (MALDI) technology did not match with any database organism, which, combined with phenotypic findings, suggests that these isolates likely represent nonpathogenic environmental Cryptococcus species. No putative pathogenic Cryptococcus was isolated from these samples, consistent with the 0–10% isolation success reported in the literature.

Conclusion: Isolation of these Cryptococcus-like yeasts suggests that further isolation attempts with this technique may result in isolation of pathogenic Cryptococcus strains from the environment in Wisconsin.

Characteristics of Patients in the Specialty Access for Uninsured Program

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Background: The Specialty Access for Uninsured Program (SAUP) is a Milwaukee County health system collaborative in which safety-net primary care clinics are paired with hospital/health systems. The clinics provide primary care services, while the hospitals provide a network of specialists. All specialty services are “covered” under SAUP at no cost.

Purpose: To examine the clinical, geodemographic, and referral pattern features of our SAUP patients and their journey to specialized care.

Methods: We prospectively identified and retrospectively reviewed patients ≥ 18 years of age with no known isolations in Wisconsin since 1964. C. gatti-endemic areas are expanding worldwide, and it is commonly isolated from tree hollows.

Results: Of the 99 patients enrolled in SAUP, 52.5% were female. The patient population had a mean age 46.5 years and body mass index of 30.9 kg/m². Patients were predominately Hispanic (98.0%), Spanish-speaking (93.9%), had contact with primary care prior to enrollment (94.4%), and resided in 2 ZIP codes within Milwaukee County (85.9%). At the time of SAUP enrollment, patients primarily had a clinical history of hypertension (21.2%) and diabetes (23.2%). Overall, SAUP-enrolled patients were generally well, with 76.5% of patients having a modified Charlson comorbidity index score of zero. Of the patients enrolled in SAUP, 90.9% followed through with the specialty visit to date. Top specialty services to which patients were referred included obstetrics (13.1%), colonoscopy/ colorectal surgery (12.1%), and ophthalmology (11.1%). The mean time between enrollment and specialty service visit was 30.1 days (median: 24.5 days), and no predictive variables were identified. Following the specialty services visit, 42.2% had contact with a primary care provider to date.

Conclusion: Patients in a managed-care specialty access program coordinated through our Milwaukee free clinics are relatively young and healthy, with follow-through percentages and wait times for specialty care at or better than national averages. Further research, including cost outcomes, is warranted.

Hospital Elder Life Program: A Retrospective Quality Improvement Project of a Delirium Prevention Program

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