GAZE WEAKNESS NEGLECT AND SPEECH (GWNS): AN ACUTE ISCHEMIC STROKE SCALE OF LARGE VESSEL OCCLUSION (LVO) IN THE EMERGENCY DEPARTMENT FOR FASTER TREATMENT

Introductions Despite the advancement in acute ischemic stroke (AIS) with LVO, golden time is lost in assessing using NIHSS in the emergency department (ER). CTA to identify LVO requires additional time and resources and exposure of radiation and contrast delaying in perfusion therapy. A simple acute ischemic stroke scale (AISS) of cortical representations in anterior circulation that will rapidly predict LVO, cutdown time and initiate early mechanical thrombectomy (MT) is ideal. We proposed an AISS as GWNS, which can be performed in a few minutes and detects LVO. Objective of our study is to evaluate the feasibility and accuracy of GWNS an AISS for the detection of LVO in the ER, which will reduce delay and avoid unnecessary exposure of radiation.

Methods An Institutional review board's permission was obtained and patient enrollment began in January 2020 and still enrolling. From the database, consecutive patients from January 2020 to September 2021 were selected. In GWNS scale, each receives 1 if positive and 0 if negative and scale ranges from 0 to 4. G represents either gaze deviation or gage preference, W represents presence of any weakness, N represents presence of any neglect/disregards and S any speech impairment as aphasia or dysarthria. GWNS scale was utilized by fellowship train stroke and neuroendovascular specialist during triage in ER. In addition to GWNS and NIHSS, patients’ demographics including CTA/cerebral angiographic data were collected. Data was analyzed by a biostatistician to determine the association of GWNS scale score and LVO.

Results 109 patients (52% women) with age 70.32 plus-minus 15 with median GWNS 3 (range 1–4) and median NIHSS 12 (range 1–27) were enrolled within 24 hours of onset with median ASPECT 9 (range 4–10) who received CTA during triage based on the suspicion of LVO. Time to obtain GWNS was 1.5 minutes (range 1 -3) and CTA was 41.3 plus-minus 7.4 minutes (29 to 51). 58 patients, who had GWNS 3 or 4 had LVO except one who presented with seizure. Of 57 LVO patients, 55 had either gage deviation/preference in addition to weakness and/or speech impairment, but only 46 patient had neglect/disregards, meaning 11 patients with LVO did not have neglect. Right hemispheric LVO was associated with neglect. None of the patient without gage and/or neglect who only had weakness and/or speech impairment had LVO. GWNS score were able to predict LVO better (ROC 0.85) than NIHSS (ROC 0.67) irrespective of the involvement of right or left. GWNS score 3/4 with Gage predicted the most for LVO (ROC 0.9).

Conclusions GWNS is an AISS of LVO which could be performed rapidly in ER. GWNS score 3 and 4 are associated with LVO, especially when gage deviation/preference are present. Additionally, GWNS scale was superior to NIHSS to detect LVO. Therefore, patients with AIS with GWNS score 3 or 4 could be directly send for early MT which will save time and millions of brain cells. Further studies are needed and we are moving to direct GWNS to thrombectomy without CTA in our next phase.

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CURRENT MANAGEMENT OF PULSATILE TINNITUS WITH VENOUS CAUSES. A LARGE CASE SERIES WITH MID- AND LONG-TERM OUTCOMES

Introduction Pulsatile Tinnitus (PT) is a disabling condition that can be caused by vascular anomalies. The treatment of the underlying vascular conditions may improve the PT, restoring the quality of life of many patients.

Purpose We aimed to investigate all vascular anomalies responsible for PT and their treatments, to assess the postoperative efficacy and the complication rate of endovascular treatments, as well as the influencing factors for recurrence.

Materials and Methods We reviewed all patients treated for PT in our institution between January 2020 and December 2021. We reviewed all clinical and imaging data, pre- and post-procedure, and patient outcomes to explore treatment efficacy and peri-operative morbimortality.

Results We included 114 patients in this study. All patients had undergone venous endovascular interventions for PT, 77% were women and 23% were men, with an average age of 52.0±15.0 years. Treatment strategies included: 53.8% venous sinus stenting (75% unilateral and 25% bilateral), 30.8% collateral venous occlusion by coiling (75% with the use of liquid embolic agent and 25% without additional agents), and 7.8% in combined stenting and coiling. The causes of PT included: intracranial stenosis in 63.3% (84.2% stenosis alone and 15.8% associated with prominent emissary veins), a high riding jugular bulb in 10% (33.3% isolated and 66.7% associated with diverticulum), prominent emissary veins in 13.3%, and an associated AVF in 13.3% of patients. No intraprocedural complications were reported. There were 2.3% of transitory peri-procedural complications. No permanent morbidity or mortality was observed.
Conclusions Endovascular treatment is a safe and effective treatment for venous causes of pulsatile tinnitus, achieving resolution of PT with low morbidity.

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E-127 ARE PEDIATRIC BRAIN ANEURYSMS REALLY INNOCUOUS: A REVIEW OF 1458 BRAIN MR ANGIOGRAMS

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Introduction The clinical characteristics, natural history, and appropriate management options of pediatric brain aneurysms remain poorly understood. We aim to evaluate clinical and imaging characteristics of pediatric brain aneurysms.

Materials and Methods A retrospective review of 1458 MR angiograms of pediatric patients (<18 years old) obtained between 2006 and 2021 was performed. A non-infundibular arterial luminal outpouching larger than 1mm in size was identified as an ‘Intracranial aneurysm’. Patient demographics, clinical presentations, predisposing risk factors including family history, and underlying medical conditions were recorded. Angiographic images were analyzed for aneurysm characteristics such as location, number, maximum diameter, and interval changes on follow-up.

Results Forty-nine (0.03%) patients (30 females, 19 males) with 64 intracranial aneurysms were identified with a mean age 13.94 ± 3.73 years (Range 6–18 years). Eleven (22.4%) patients had multiple aneurysms. An underlying systemic illness was observed in 81.6% (40/49) cases, with sickle cell disease as the most frequent (25/49, 51%) diagnosis. A family history of intracranial aneurysms was recognized in 36/1458 (0.02%) patients. However, no intracranial aneurysm was found in these patients. While 02/49 (4%) patients presented with acute sub-arachnoid hemorrhage, 96% of patients were diagnosed as Unruptured intracranial aneurysms with headache as the most common (16/47, 34%) presentation. The majority (47/64, 73.4%) of these aneurysms were located in the anterior circulation, with ophthaletic segment of the ICA being most frequently (24/47, 51%) involved. Most (54/64, 84.4%) aneurysms were smaller than 4mm in size at the time of diagnosis. At least one follow-up MRA was available in 66% (31/47) of the patients with unruptured aneurysms. No change in the aneurysm size and morphology was noticed in 28 (90%) patients over an average imaging follow-up of 33 months. Three (9.6%) patients demonstrated an interval increase in the aneurysm size. Both SAH patients and two unruptured aneurysm patients were successfully treated with endovascular techniques.

Conclusion Female predominance with higher frequency of Small, and unruptured intracranial aneurysms was recognized in our cohort. A higher incidence of an underlying systemic illness especially sickle cell disease was also noted. Most intracranial aneurysms in children appear to remain stable. However, there is a definite risk of aneurysm progression which warrants regular clinical and imaging follow-up.