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STROKE AND TOCOTRIENOLS UNIQUE ROLE IN NEUROPROTECTION (SATURN): PROTOCOL

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ABSTRACT

Introduction: Stroke is a major health problem and the second leading cause of death worldwide. In Malaysia, it is the third largest cause of morbidity and mortality. To date, there is no clinically proven neuroprotective agent that can be used prophylactically to minimize the brain cells damage during a stroke nor is there any agent that can ameliorate or hasten the recovery after its attack. Tocotrienols have been reported to exert neuroprotective properties both in cell-based and animal studies. The neuroprotective properties were also demonstrated at the concentration or doses that are achievable in normal supplementation with tocotrienols in humans. Based on these encouraging results, we postulate that mixed tocotrienols from palm oil may indeed be beneficial in helping to improve neurological deficits in patients who have suffered a stroke attack.

Method: Treatment group given tocotrienols while the control group given placebo for 24 weeks with follow up every 12 weeks. Evaluation of study endpoints will be performed at week 24 (end of treatment phase). A safety follow-up visit will be performed up to 14 days after last study treatment administration.

Results: Efficacy parameter will be measured with assessment tools, ie. MRS, NIHSS, MBI, CLOX and TMT Parts A & B. The analyses will be performed using IBM SPSS Statistics. Descriptive statistics will be utilized for selected variables. All probability values will be used two-sided p-value < 0.05 will be considered as statistically significant.

Conclusion: We hypothesized that tocotrienols will reduce neurological deficit and improve functional outcomes after acute ischemic stroke.

AGE ON PREVALENCE OF EPIDEMIOLOGICAL FACTORS, STROKE SUBTYPES AND STROKE EVENTS: AN OBSERVATIONAL STUDY

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ABSTRACT

Introduction: Stroke had been known as a disease of aging but trends were found towards rising stroke incidence at younger age which bring great public health impact as stroke in younger patients carry the potential for greater lifetime burden of disability. Specific definition of young stroke is lacking, the vast majority of authors consider "young stroke" to pertain to individuals under 45 years of age. Age remains as an important non-modifiable risk factor and may be accompanied by multiple comorbidities, particularly for the elderly-aged population which makes worse the prognosis.

Method: We explored 1373 patient data retrieved from the National Neurology Registry (NNeuR) of Seberang Jaya Hospital (HSJ) between January 2013 and December 2018. Data on patient demographics and stroke manifestations were analysed using descriptive analysis.

Results: Mean age of gender on stroke admission had reduced to below 60 years old in male patients, while increased to around 70 years old in female patients on last few years. Mean age of ethnic group on stroke admission was rather plateau over the years. Smoking had been the leading risk factor for stroke admission below 60 years old since year 2016. Mean age of haemorrhagic stroke fluctuated over the years, while mean age of ischaemic stroke and transient ischaemic attack showed rather plateau throughout the years. Mean age for first-ever and recurrent stroke had also been reducing to involve young-aged population over the last few years, with youngest age at presentation of both type of stroke event lowest on year 2018.

Conclusion: Trends towards younger-aged population was noted. More studies on young stroke are needed to understand and reduce their health impact and burden.

INTRAVENOUS THROMBOLYSIS IN OLDER PATIENTS WITH ACUTE ISCHAEMIC STROKE. IS IT SAFE IN OLDER PATIENTS IN MALAYSIA?

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ABSTRACT

Background: Age is still a barrier to the administration of intravenous thrombolysis (IVT) in acute ischaemic stroke, despite emerging evidence on its effectiveness and safety in older patients. This study aims to look at the safety and functional outcome between young and older patients.

Methods: Data were extracted from Malaysia National Stroke Registry particularly looking at patients who were admitted to Seberang Jaya Hospital and Taiping Hospital for acute ischaemic stroke and given intravenous thrombolysis from 2012 to September 2019. Safety measures were all intracranial haemorrhage and symptomatic intracranial haemorrhage. Effectiveness and outcome measurements were improvement in NIHSS, modified Rankin Scale at 3 months, and mortality.

Results: Out of a total of 61 patients who were given IVT, 16 (26.2%) aged 65 or above. The mean age was 56.7(SD=12.6). Only 1 octogenarian was included. There was a statistically significant difference in the median NIHSS on admission between older and younger patients which were 15 and 11 respectively (p value=0.003). The older patient was associated with a statistically significant higher rate of intracranial haemorrhage (56.3% versus 8.9%,p value<0.001); but not symptomatic intracranial haemorrhage (18.8% versus 4.4%, p value=0.108); There was no difference in mortality rate (p value=0.131), 3-month disability (p value=0.07), NIHSS improvement post IVT(p value=0.207) between the two groups.

Conclusion: Apart from intracranial haemorrhage, the older age group was not associated with a higher rate of symptomatic intracranial bleed, mortality, or worse functional outcome. A larger sample study is required to determine whether the older age group is an independent risk factor of poorer outcomes after IVT.

INTRAVENOUS AND INTRA-ARTERIAL THROMBOLYSIS FOR AIS WITH WAKE-UP STROKE – A CASE REPORT FROM SARAWAK GENERAL HOSPITAL

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ABSTRACT

Introduction: Intravenous Thrombolysis (IVT) remains as the main treatment of choice for patients with acute ischaemic stroke patient in resource limited setting. Patient with unwitnessed symptom onset is previously excluded from intravenous thrombolysis. Recent evidence(2,3) proved that MRI and perfusion scan can be used to extend the thrombolysis window. We report a case of acute stroke of unknown onset being treated based on MR perfusion scan.

Case Presentation: A 45 years old gentleman previously healthy, active smoker of 5 pack years, found to have right-sided body weakness upon waking up. He was last seen well 12 hours prior to admission. Upon presentation, he was aphasic with dense right hemiparesis with power 0/5 and left gaze preference, NIHSS was 20. Capillary blood glucose was 4.2, blood pressure of 131/72, ECG was normal sinus rhythm with a heart rate of 70. CT Brain showed left basal ganglia hypodensity. MRI Brain with MR Perfusion showed acute left basal ganglia infarction. The estimated infarcted core is 12cm3 while there is 46cm3 penumbra on MR perfusion.

He was given intravenous Alteplase 0.6mg/kg and planned for intraarterial thrombolysis as rescue. Initial cerebral angiogram showed occluded Left ICA which recanalised with Intra-arterial thrombolysis. However left lenticulostriate artery remain occluded. Repeated scan at 24 hours showed small hyperdensity at the left basal ganglia region, likely represent mild bleed. His condition improved after thrombolysis with NIHSS improved to 9 on day 11 of stroke. At 3 months follow up, his NIHSS improved to 3. After 1 year, he has recovered fully from stroke.

Conclusion: Acute Ischemic stroke causes significant mortality and morbidity. MR perfusion extend the thrombolysis window beyond 4.5 hours of symptom onset and it could be incorporated into acute thrombolysis workflow for patient presenting beyond 4.5 hours.

THROMBOLYSIS IN HYPERACUTE STROKE BY PHYSICIANS IN RESOURCE-LIMITED SETTINGS: THE ESTABLISHMENT OF SERVICE AND CLINICAL OUTCOME APPRAISAL

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ABSTRACT

Introduction: Intravenous thrombolysis with recombinant tissue plasminogen activator (rt-PA) is a well-established therapy/intervention in hyperacute ischaemic stroke. We describe the establishment of this service in Tawau and Bintulu Hospital, two resource-limited acute stroke ready hospitals without in-house neurologist, while evaluating the patients' clinical outcomes following rt-PA therapy.

Methods: Evidence-based Acute Stroke Protocol were drafted under the guidance of respective state neurologists. Acute Stroke Teams, headed by dedicated physicians, were formed to enforce the service implementation and delivery. Patients' clinical data was recorded contemporaneously during admissions and follow-up appointments. Secondary data collection was performed through retrospective review of medical records.

Results: Twenty-nine Asian adults, namely 19 (65.5%) males and 10 (34.5%) females with a mean age of 56.9 (SD 12.2; range 34-77) years, received IV rt-PA therapy from January 2018 to March 2020.
Upon presentation, their median NIHSS was 12 (IQR: 10-19) and median ASPECTS was 9 (IQR: 8.5-10). Median time from stroke onset to rt-PA was 210 (IQR: 180-235) minutes while median door-to-needle time was 75 (IQR 50-115) minutes. Their median NIHSS at 24 hours, 72 hours, and on day 7 post-rt-PA were 7 (IQR: 3-12), 7 (IQR: 1.5-12), and 6 (IQR: 1.5-11) respectively. Such improvements were clinically and statistically significant upon comparison with their pre-rt-PA NIHSS with $p<0.001$ respectively. Notably, nineteen (65.5%) patients achieved mRS≤1 within 90 days post-rt-PA. Three (10.3%) patients developed non-fatal intracranial haemorrhages while two (6.9%) patients succumbed to non-haemorrhagic extracranial causes, all within 90 days post-rt-PA.

Conclusion: Despite challenges/limitations in logistics, healthcare facilities, human and financial resources, and the lack of in-house neurologist, it is still possible, provided with concerted efforts to work within the confines of these limitations and strict adherence to evidence-based protocol, to provide a beneficial intravenous thrombolysis service for stroke patients safely and fairly efficiently, even in non-stroke centres.

OUTCOME OF ISCHEMIC STROKE THROMBOLYSIS TREATMENT IN SEBERANG JAYA HOSPITAL, A SINGLE CENTER 8 YEARS REVIEW: 2012- 2019

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ABSTRACT

Introduction: Ischemic stroke is a neuromedical emergency. Systemic thrombolysis with recombinant tissue plasminogen activator (rtPA) is an effective therapeutic option in the treatment of acute ischemic stroke.

Objective/Purpose: To study the treatment outcome of ischemic stroke patients who had received intravenous thrombolysis at Seberang Jaya Hospital.

Methods: This is a retrospective cross sectional study of acute ischemic stroke patients who had received IV-rTPA (IVT) at Seberang Jaya Hospital from year 2012 to 2019. Data was extracted from the medical record of study subjects. The analysis is part of the National Stroke Registry.

Results: A total of 49 patients with ischemic stroke had received systemic thrombolysis with IVT from year 2012 to 2019. The mean (SD) NIHSS upon admission was 13 (5). 47% were PACI, 26.5% were LACI, and 26.5% were TACI. Four patients (8.2%) received mechanical thrombectomy. Four patients (8.2%) required decompressive craniectomy. Eight patients (16.3%) had intracranial bleeding (ICB) post IVT. Six patients(12.2%) died in the same admission, and four patients (8.2%) died within three months post discharge. MRS score at three months were: MRS 0 (5 [10.2%]); MRS 1 (9 [18.4%]); MRS 2 (7 [14.3%]); MRS 3 (6 [12.2%]); MRS 4 (10 [20.4%]); MRS 5 (2 [4.1%]); and MRS 6 (10 [20.4%]).

Conclusion: Compared to the ECASS III trial, there were fewer patients with favourable outcome at three months (MRS score of 0 or 1) (28.6% vs 52.4%), but the ICB complication rate was lower (16.3% vs 27%) among acute ischemic stroke patients who had received IVT at our center.

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RETROSPECTIVE COMPARISON OF HYPERACUTE MRI BRAIN VS. CT BRAIN IN ACUTE ISCHEMIC STROKE : AN OBSERVATIONAL STUDY IN A DISTRICT HOSPITAL

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ABSTRACT

Introduction: Immediate accessed to brain imaging is important in managing hyperacute stroke. Most center in our country utilizes CT brain during the code stroke. We take the opportunity to study the hyperacute stroke MRI (hMRI) sequence from 1st of October to 31st of December 2019 during the CT service upgrading process. We aim to compare the hMRI vs CT timing during office-hour in stroke thrombolysis cases in 2019.

Objective/Purpose: To determine door-to-needle and stroke outcome for hMRI vs CT during office-hour.

Methods: A retrospective study done in Seberang Jaya Hospital from 1st October 2019 to 31st December 2019. Patients who received IVT within office-hour in year 2019 were recruited. The hMRI sequence consisted of Localizer, DWI/ADC, T2 flair, and T2 GRE.

Results: The hMRI(n=4) door to imaging median was 80.0 (IQR : 45.0) minutes vs. Door-to-CT time (n=8) median of 25.0 (IQR: 29.75) minutes (p value=0.073). The door to needle time (DNT) for hMRI median was 105.0 (IQR : 51.0) minutes and the DNT for CT subgroup median was 75.0 (IQR: 36.5) minutes (p value =0.461).

Conclusion: The hMRI is more time consuming but it can be an alternative brain imaging for hyperacute stroke patients in the event of non- availability of CT services.

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