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ISCHEMIC STROKE AND HYPERACUTE TREATMENT IN SEBERANG JAYA HOSPITAL: THE SEBERANG PRAI MODULE

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ABSTRACT

Introduction: Seberang Jaya Hospital (SJH) started its first thrombolysis service in year 2012. Throughout the past 10 years, the service was further expanded with the introduction of hyperacute MRI (hMRI) sequence for wake-up stroke (2019), public-private partnership in mechanical thrombectomy (2019), and hub and spoke stroke activation module for nearby peripheral district hospital (2020). **Objectives:** To describe the flow of stroke activation and hyperacute treatment in Seberang Prai. **Methodology:** This is an analysis of an ongoing stroke registry data that included acute ischemic stroke (AIS) patients who had received hyperacute treatment from 2012 to 2022. **Result:** Any adult patients who presented with stroke symptoms within 4.5 hours will be alerted to stroke team. The imaging of choice is plain CT brain, CT angiography of brain, or hMRI sequence depending on the clinical scenario. Patients in periphery hospitals will be attended by the local medical team and updated to neurologist via telemedicine. The patients would then be transferred to SJH for imaging, and subsequently given IVT in emergency department. MT would be offered to eligible patients, and those agreed would be transferred to nearby private comprehensive center for MT, due to non-availability of in-house interventionist. Post-MT patients would be transferred back to SJH for continuation of care. Patients with rehabilitation potential would be assessed by geriatrician for in-house rehabilitation programme. All post-IVT or MT patients would be reviewed back in Neurology clinic 3 months post-discharge for recovery progress and stroke data collection. **Conclusions:** AIS is an emergency. The effective treatment of acute stroke requires speed and TEAM: Together Everyone Achieves More.

ASSOCIATION OF ADMISSION BLOOD SUGAR LEVEL WITH ADMISSION NIHSS AND mRS 3 MONTHS POST ISCHEMIC STROKE THROMBOLYSIS - SEBERANG JAYA HOSPITAL

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ABSTRACT

Introduction: Diabetes mellitus is a risk factor for ischemic stroke, and hyperglycemia is a common observation during acute stroke. To date, there are not much data on the association of admission blood glucose with stroke severity and functional outcome post thrombolysis. **Objectives:** To determine the association of admission blood glucose with admission NIHSS and mRS 3-months post thrombolysis of acute ischemic stroke (AIS) patients. **Methodology:** This is a retrospective cross-sectional study involving all AIS patients who received IVT from year 2012 to January 2022 in Seberang Jaya Hospital. Data was collected from clinical case notes and analyzed with SPSS IBM Version 25. **Result:** A total of 141 AIS patients received IVT from 2012 to January 2022. The mean age of patients was 59.7 (SD=12.3). The mean admission blood glucose was 10.3 (SD=5.2). Admission blood glucose (mmol/L) were categorised into: ≤ 10.0 (n=89; 63.1%), 10.1-14.0 (n=23; 16.3%), 14.1-18.0 (n=15; 10.6%), and ≥ 18.1 (n=14; 9.9%). The mean NIHSS upon admission was 12.5 (SD=5.2). The admission NIHSS was categorized into mild [0-7 (n=24; 17.0%)], moderate [8-15 (n=77; 54.6%)] and severe [>16 (n=40; 28.4%)]. Modified Rankin Scale (mRS) score at three months was categorized as good prognosis, 0-2 (n=56; 39.7%) and poor prognosis 3-6 (n=85; 60.3%). Admission blood glucose was not found to have significant association with admission NIHSS (p=0.921) and mRS score at 3 months (p=0.805). **Conclusions:** Admission blood glucose is not associated with admission NIHSS and mRS 3 months post IVT.

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ASSOCIATION OF WEIGHT WITH ADMISSION STROKE SEVERITY AND FUNCTIONAL OUTCOME IN ACUTE ISCHEMIC STROKE PATIENTS WHO RECEIVED INTRAVENOUS THROMBOLYSIS IN SEBERANG JAYA HOSPITAL

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ABSTRACT

Introduction: Obesity is an established risk factor for stroke, but the association of weight with admission stroke severity and functional outcome are not well established. **Objectives:** To determine the association of weight with admission stroke severity and functional outcome in acute ischemic stroke (AIS) patients treated with intravenous thrombolysis (IVT) in Seberang Jaya Hospital (SJH). **Methodology:** This retrospective cross-sectional study involved AIS patients who were given IVT from July 2012 to December 2021. Data was extracted from the medical records and analyzed with SPSS IBM Version 25. The patients were categorized into three groups based on their body weight: 40-60kg, 60-80kg and >80kg. Admission stroke severity was graded with the National Institutes of Health Stroke Scale (NIHSS) score (0-7 mild; 8-15 moderate; ≥ 16 severe) and functional outcome was graded with modified Rankin Scale (mRS) score at 3 months post-IVT (0-2 good outcome; 3-6 poor outcome). **Result:** Among the 136 post-IVT AIS patients, the mean admission NIHSS was 12 (SD 5.09) and mean mRS at 3 months was 3 (SD 1.92). Majority of the patients in all three groups have moderate stroke severity, with highest percentage noted in >80kg group, followed by 61-80kg and 40-60kg groups [n=11(78.6%); n=46 (63.0%); n=60 (61.2%)]. As for the mRS at 3 months, more than half of the patients in all groups have poor outcome, of which the 40-60kg group has the highest percentage (n=33;67.3%), followed by the ≥ 80 kg group (n=9;64.3%) and the 60-80kg group (n=39;53.4%). There was no statistical significance between the body weight of AIS patients with their admission stroke severity (p=0.739), and functional outcome post-IVT (p=0.297). **Conclusions:** Body weight is not associated with admission stroke severity and functional outcome in AIS patients treated with IVT.

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ASSOCIATION OF SMOKING WITH ADMISSION STROKE SEVERITY, TYPES OF STROKE AND ISCHAEMIC STROKE SUBTYPES AMONG STROKE PATIENTS IN HOSPITAL SEBERANG JAYA

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ABSTRACT

Introduction: According to World Health Organization (WHO), smoking is a well-established risk factor for stroke due to its direct effect on the development of atherosclerosis and arterial damage. **Objectives:** This study aimed to determine the association of smoking with admission stroke severity, types of strokes and ischaemic stroke (IS) subtypes among stroke patients in Hospital Seberang Jaya. **Methodology:** We included 392 stroke patients from June 2020 to December 2021. Data was extracted from the medical records and analyzed with SPSS IBM Version 20. The patients were categorized into two groups: smoker and non-smoker. The primary outcome was admission stroke severity assessed using the National Institutes of Health Stroke Scale (NIHSS) score, whereas the secondary outcomes were types of strokes based on the WHO classification and ischaemic stroke subtypes based on the Oxfordshire Community Stroke Project (OCSP) classification. All variables were categorical and were compared using chi-square test or Fisher's Exact test when the assumptions were not met. **Result:** A total of 134(34.2%) smokers and 258(65.8%) non-smokers were included in this study. The median (IQR) for admission NIHSS was 3(4) for both groups. Most patients had mild stroke (NIHSS 0-4), but the percentage was higher in the smoker group [100(74.6%) versus 185(71.7%)]. There was no statistically significant association between smoking and admission stroke severity ($P=0.180$). The most common type of stroke was IS with a higher percentage in the smoker group than in the non-smoker group [116 (86.6%) versus 214 (82.9%)]. Among 329 IS cases, lacunar infarct was the most common subtype in both groups [99 (86.1%); 173 (80.8%)]. There was no statistically significant association between smoking and types of strokes or IS subtypes ($P=0.463$; $P=0.483$). **Conclusions:** Smoking may not be associated with admission stroke severity, types of strokes and IS subtypes. Future larger studies are warranted to confirm the findings.

OUTCOME OF ISCHEMIC STROKE THROMBOLYSIS TREATMENT IN SEBERANG JAYA HOSPITAL, A SINGLE CENTER 10 YEARS REVIEW: 2012- 2021

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ABSTRACT

Introduction: Stroke ranked the third most common mortality cause in Malaysia. Intravenous thrombolysis (IVT) is the standard reperfusion therapy for patients with acute ischemic stroke. **Objectives:** To study the treatment outcome of acute ischemic stroke (AIS) patients who had received IVT at Seberang Jaya Hospital (SJH). **Methodology:** This is an analysis of ongoing stroke registry data that included acute ischemic stroke patients who had received IVT at SJH from 2012 to 2021. **Result:** A total of 149 patients with AIS had received IVT in SJH from the year 2012 to 2021. The mean (SD) NIHSS upon admission was 12.66(5.23). 39.60% were partial anterior circulation infarct (PACI), 26.85% were lacunar cerebral infarct (LACI), 25.50% were total anterior circulation infarct (TACI), and 8.05% were posterior circulation infarct (POCI). Modified Rankin Scale (mRS) score at three months were: mRS 0 (13[8.70%]); mRS 1(24[16.10%]); mRS 2(25[16.80%]); mRS 3(23[15.40%]); mRS 4(26[17.40%]); mRS 5(8[5.40%]); and MRS 6(30 [20.1%]).28(18.80%) patients developed intracranial bleeding (ICB) post-IVT. 7(4.70%) patients developed other bleeding events such as gum bleeding and haematoma. 25 (16.78%) patients died in the same admission, and five (5.43%) patients died within 3 months post IVT. Massive infarct with cerebral oedema (40%) is the commonest cause of post IVT mortality. **Conclusions:** Compared to CASES cohort study, our centre has a lower percentage of patients who achieved favourable functional outcomes (mRS score of 0-1) at three months (25.00% vs 31.80%), lower rate of ICB post thrombolysis (18.80% vs 28.90%), and a lower rate of mortality within 3 months post IVT (20.10% vs 22.30%).

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A RARE COMPLICATION OF ACUTE ISCHEMIC STROKE DURING CARDIAC CATHETERIZATION: A CASE REPORT

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ABSTRACT

Background: Acute stroke during cardiac catheterization is rare with incidence rate ranging from 0.2% to 0.4%. We report the case of a 70-year-old lady with independent activities of daily living pre-morbidly who had acute ischemic stroke during her cardiac catheterization. **Case presentation:** She was admitted for an elective coronary angiogram following an acute episode of NSTEMI a month ago. Coronary angiogram was done under local anaesthesia without sedation via her right radial artery. During the procedure, tortuosity of right subclavian artery was noted. Her GCS dropped to E3V2M5 shortly after undergoing coronary angiography. An emergency computed tomography (CT) angiography of the cerebral arteries revealed right middle cerebral artery (MCA) infarct (ASPECTS score 7) with distal right MCA (M4) thrombosis. Intravenous thrombolysis using recombinant tissue plasminogen activator (Alteplase) was administered immediately. Upon reassessment 2 hours later, her NIHSS decreased from the initial score of 9 to 6. Her GCS also improved fully after the thrombolysis. Neurological examination revealed left seventh cranial nerve palsy (upper motor neuron type), mild dysarthria, reduced powers of her left-sided upper limb (MRC graded 4) and lower limb (MRC graded 4) with left-sided upgoing Babinski. After 24 hours of thrombolysis, contrasted CT brain showed evolving right MCA territory infarct, with no evidence of acute intracranial bleeds or haemorrhagic transformation. Otherwise, her left-sided weakness of upper limb and lower limb remained similar with no new neurological deficits. She had complete bed rest for a week in the ward after the acute ischemic stroke. However, she developed deconditioning subsequently. She was given single anti-platelet therapy in the first week of stroke and restarted with double anti-platelet therapy thereafter. **Conclusion:** Despite transradial approach has lower risk of neurovascular complication (as compared to transfemoral route), usage of correctly sized material and meticulous manipulation of guidewire are of utmost importance.

STROKE AWARENESS AMONGST HEALTHCARE PROVIDERS IN AN UPPER MIDDLE-INCOME COUNTRY

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ABSTRACT

Introduction: Stroke is a rapidly developing clinical signs of focal or global disturbance of cerebral function with symptoms lasting 24 hours or longer or leading to death. It affects one in four people across the globe and is the third highest cause of death in Malaysia. **Objectives:** To explore the level of awareness in stroke care amongst healthcare providers in the Kuala Pilah District, Malaysia. **Methodology:** A cross-sectional study was conducted during the World Stroke Day awareness campaign in Hospital Tuanku Ampuan Najihah (HTAN), Kuala Pilah, Negeri Sembilan, Malaysia from the 1st to 28th of October 2021. A Google Doc questionnaire comprising ten questions on stroke care was sent to all departments in HTAN via WhatsApp instant messaging. Participants were allowed multiple submissions. One point was given for each correct response. Responses were collated and analysed using Google Doc application. **Result:** A total of 463 responses were recorded from 432 participants. The mean and median scores were 7.46 and 7, respectively. Most respondents (87.9%) knew about the timing of acute stroke thrombolysis, secondary prevention of stroke (79.3%), signs of dysphagia (94.4%), dietary modifications (98.1%) and stroke rehabilitation (97.6%). Only 15.6% respondents knew that the Face-Arm-Speech-Time (FAST) acronym is not sensitive to detect posterior circulation infarct. **Conclusions:** Stroke awareness amongst healthcare providers in the Kuala Pilah District varies from acute stroke care to rehabilitation. Areas which need more emphasis are signs and symptoms of posterior circulation syndrome, sexual dysfunction after stroke and the timing to start antihypertensives after an acute stroke.

Keywords: World Stroke Day, stroke awareness, healthcare providers, developing country, upper middle-income country.

HYPERCOAGULABLE STATE LEADING TO THROMBOTIC COMPLICATIONS AND CEREBRAL ARTERY INFARCTION IN PATIENT WITH SEVERE COVID-19 INFECTION. A CASE REPORT

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ABSTRACT

Case presentation: We report a rare case of major deep vein thrombosis with Left anterior cerebral artery (ACA) and middle cerebral artery (MCA) infarction requiring emergency left decompressive craniectomy in a 40-year-old gentleman severe non-ICU COVID-19 infection with a no known risk factor for cerebrovascular disease or hypercoagulable state. Patient recovered one month later with a good GOS scoring, fully alert, able to follow command with right sided hemiplegia. The proposed mechanisms for hypercoagulable state among Covid-19 patients are through systemic inflammation and cytokine storm, postinfectious immune-mediated responses, and direct viral-induced endothelitis or endotheliopathy which potentially leading to angiopathic thrombosis. This complication is also associated with an increase rate of both arterial and venous thromboses in the pulmonary and systemic vasculature with the incidence rate of almost 2.8% to 3.8%. Therefore, we feel that it is crucial for all health personnel to have a high level of clinical suspicion and low threshold for diagnostic imaging for complications related to the hypercoagulable state among severe ICU and non-ICU COVID-19 patients.

LESSONS LEARNT FROM A POSTERIOR CIRCULATION STROKE IN A COVID-19 PATIENT: A CASE REPORT

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ABSTRACT

Background: Since the start of the COVID-19 pandemic, an increasing number of COVID-19 related strokes have been reported, especially in young, healthy patients. **Objectives:** The aims of this case report are to highlight in this pandemic era: (1) consider diagnosis of COVID-19 in young, healthy patients who present with stroke despite absent COVID-19 infective symptoms; (2) successful outcome of COVID-19 stroke patients will require multidisciplinary treatment. **Case presentation:** A 45-year-old male presented with acute onset of headache and vertiginous giddiness. He was afebrile and denied any infective symptoms. As several of his roommates had been diagnosed with COVID-19, he was promptly isolated while awaiting confirmation of his COVID-19 status, although his admission chest x-ray was clear. His findings included left-sided dysmetria, left-sided dysdiadochokinesis, and left-sided heel-shin in-coordination. His neuroimaging confirmed a massive infarct in the left cerebellar hemisphere, left middle cerebellar peduncle and left hemipons. He was commenced on intravenous mannitol and monitored in the intensive care unit. The following day, he was confirmed SARS COVID-19 positive. Next day, because of neurological deterioration, he required urgent posterior fossa decompression, and insertion of external ventricular drain. Three weeks later, he was de-isolated and transferred to inpatient rehabilitation unit. After 2 months of hospitalization, he was independent in his activities of daily living and discharged. **Conclusion:** It has been reported in almost half of the young patients, stroke was more likely to happen before onset of any COVID-19 infective symptoms. Hence, it is important to consider the diagnosis of COVID-19 in young, healthy patients who present with stroke during the pandemic. Due to high vigilance and a comprehensive screening protocol, none of the healthcare workers that the patient had contact with, were infected with COVID-19. A successful rehabilitation outcome requires multidisciplinary effort.