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STROKE REHABILITATION IN HOSPITAL RAJA PEREMPUAN ZAINAB II: A CROSS SECTIONAL STUDY

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ABSTRACT

Introduction: Stroke remains a significant global health problem and one of the leading causes of death in Malaysia. With recent medical advancement, the number of stroke survivors have increased but majority of them dependent functionally. The role of stroke rehabilitation undoubtedly plays an important role in improving the quality of life and independency of the survivors. This study aimed to assess the stroke rehabilitation services in HRPZ II: from the referral rate, compliancy and the functional outcome of stroke survivors following one year of rehabilitation.

Methodology: A cross sectional study involving all new stroke cases who admitted to HRPZII from January until December 2017 and later referred for post stroke rehabilitation. Their modified Rankin Scale (mRS) pre and 1-year post rehabilitation were collected and analysed.

Result: A total number of new stroke patients were 263 in which 139 (52.9%) of them were referred and seen by rehabilitation team at least once, whereas 110 (79.1%) patients did not attend the subsequent follow up. Among them, 29 (20.9%) patients were compliant to follow up until they were discharged or at least for 1 year. Pre-rehabilitation mean mRS was 3.62 (STD 1.18), one-year post rehabilitation mean mRS was 1.59 (STD 1.12) and the difference of both was statistically significant with P value <0.05.

Conclusion: Though the benefits of stroke rehabilitation were well established, there was a difference in the clinical practice particularly in HRPZ II. Future prospective studies of multi-hospitals are warranted to observe the real picture and other factors that could attribute to such pattern. The gap can be bridged by creating more awareness to the local public and healthcare providers regarding the service and the importance of stroke rehabilitation.

FACTORS AFFECTING ARRIVAL TIME OF ACUTE ISCHAEMIC STROKE PATIENTS IN PUSAT PERUBATAN UNIVERSITI KEBANGSAAN MALAYSIA

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ABSTRACT

Introduction: Stroke reperfusion therapy improved the acute Ischaemic Stroke patients' outcome. Our current stroke centres are primary stroke centre which offer intravenous thrombolysis which is indicated for up to 4.5 hours from stroke onset without thrombectomy facility. Our study aims to identify the factors of arrival time for acute ischaemic stroke patients to our centre.

Methods: We conducted a cross-sectional study and recruited patients with acute Ischaemic Stroke admitted to PPUKM. They are divided to 2 groups based on arrival time from onset of stroke till emergency department. The 2 groups are early-arrival group (arrival time \leq 4.5 hours) and late-arrival group (arrival time $>$ 4.5 hours). Data was collected with standard and validated Stroke Knowledge Test (SKT) questionnaires.

Results: A total of 153 patients who presented with acute stroke were recruited. 31.4% of patients were in the early-arrival group vs. 68.6% patients were in the late-arrival group. Factors associated with early-arrival are younger age ($p = 0.024$), mode of arrival by ambulance (OR 2.59; CI (1.17-5.72); $p = 0.017$), history of Ischaemic heart disease (OR, 3.66; CI (1.30–10.31); $p = 0.007$), body weakness (OR, 4.76; CI (1.06–21.41); $p = 0.027$) and facial asymmetry (OR, 3.05; CI (1.48-6.29); $p = 0.002$). Late arrival patients are associated with poor score in SKT (OR, 3.51; CI (1.41-8.71); $p = 0.005$), older age group ($p=0.024$), low NIHSS ($p=0.001$) and low income group ($p = 0.004$). The study also found that belief and practice of TCM did not affect the stroke arrival time.

Conclusion: Poor stroke awareness, mild stroke severity and low income are associated with late arrival to the hospital. Stroke awareness campaign to educate the public should be plan in the future to ensure early arrival which can lead to a better clinical outcome.

OUTCOMES OF ANTIPLATELET THERAPY FOR SECONDARY PREVENTION IN PATIENTS WITH ISCHAEMIC STROKE OR TRANSIENT ISCHAEMIC ATTACK

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ABSTRACT

Background: This study aimed to assess effectiveness and safety outcomes of antiplatelet therapy for secondary prevention among patients with ischaemic stroke or transient ischaemic attack (TIA) in Malaysia.

Method: Patients aged ≥ 18 years diagnosed with a first ischaemic stroke/TIA between 2014 and 2017 were identified from stroke registry. Data in the registry was linked with other data sources for information on antiplatelet exposure and outcome events. Exposure was defined as treatment with an antiplatelet therapy at discharge from the index stroke hospitalisation and categorised into single antiplatelet therapy (SAPT) and dual antiplatelet therapy (DAPT) groups. Primary outcome was composite events of stroke, myocardial infarction, and all-cause death at up to one year after the index stroke in an intention-to-treat analysis. We used Cox proportional hazard models to calculate hazard ratios (HR) with 95% confidence interval (CI).

Results: Among 4434 patients included in the analysis, mean age was 61.2 years and 57.5% were male. Two-hundred-ninety-nine (6.7%) of these patients were treated with DAPT while the remaining were in SAPT group. Composite events occurred in 8.1% of patients in DAPT group and in 17.8% of patients treated with SAPT ($p < 0.001$). The rates of individual events were lower among DAPT compared to SAPT group: recurrent stroke (4.7% versus 6.1%), myocardial infarction (1.3% versus 2.3%), and all-cause death (2.1% versus 9.3%). Bleeding occurred in 2.0% of patients in DAPT group versus 1.6% of patients in SAPT group. Multivariable-adjusted Cox regression analysis showed that rates of composite outcome was lower among DAPT compared to SAPT group (HR 0.53, 95%CI 0.32 to 0.87).

Conclusion: In patients with ischaemic stroke/TIA, treatment with DAPT following the index stroke was associated with reduced risk of the composite events of stroke, myocardial infarction, and death. There appears to be similar risk of bleeding with DAPT versus SAPT.

USE SMARTPHONE APPLICATION TO SAVE LIFE IN PATIENTS OF ACUTE ISCHEMIC STROKE

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ABSTRACT

Introduction: In 2019, cerebrovascular accident is the first cause of disability in Taiwan. And the large artery occlusion is one of the devastating events among cerebrovascular accident. In 2015, five big clinical trials confirmed the strong benefit of intra-arterial thrombectomy for these patients. But the thrombectomy is highly technic and facility-dependent procedure, especially to maintain 24-hour available service. In central Taiwan, only our hospital (China Medical University Hospital) can achieve this whole-day thrombectomy treatment. So many surrounding hospitals transfer their large artery occlusion patients to our hospital, with increasing transfer number since 2017. But we found doctors and nurses waste lots of time in communication during interhospital transfer. We started to use smartphone application, “LINE”, to solve this problem.

Methods: We used smartphone application, “LINE” to create a security platform for interhospital transfer communication. We did retrospective chart review of these transfer patients. We started to use “LINE” since January 2018. So we chose the period of May 2017 to December 2017 as baseline. Then compare the characteristics and outcome of thrombectomy patients in 2018 and 2019.

Results: After used the smartphone application, the number of transfer patients greatly increase, from 63 patients in 2017, to 113 patients in 2018, then 175 patients in 2019. And the door to puncture time of these transfer patients decreased, from 109 minutes (2017), to 102 minutes (2018), then 91 minutes (2019), P value= 0.041 (by one way ANOVA in SPSS software). And the percentage of good outcome (90-day modified Rankin Scale= 0, 1, 2) patients after thrombectomy increase, from 11.4% to 21.7%.

Conclusion: Smartphone application as “LINE” enhance the interhospital communication. And thus speed up the door to puncture time and improved the outcome in three months.

FRAILITY AND ITS ASSOCIATION WITH CHARACTERISTICS AND OUTCOMES OF OLDER PERSONS WITH ACUTE STROKE

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ABSTRACT

Introduction: Frailty is a geriatric syndrome associated with adverse outcomes. The aim of our study is to determine patient characteristics and outcomes in older adults with acute stroke, comparing those with and without pre-stroke frailty.

Methods: This retrospective observational study included adults aged ≥ 65 admitted to the geriatric medicine unit of our university hospital with acute stroke between January 2015-January 2020. Pre-stroke frailty was scored by the Clinical Frailty Scale (CFS), from 1-8, with higher numbers indicating higher degrees of frailty.

Results: To date, we included 223 patients with a mean age of 81.2 ± 6.3 . This cohort was classified into two groups: non-frail (CFS 1-4, 40.3%) and frail (CFS 5-8, 59.7%).

Compared to the non-frail, frail patients were more likely to be ≥ 85 years old (35.9% vs 14.9%, $p=0.003$), residing at nursing homes (15.3% vs 3.6%, $p=0.007$), have recurrent strokes (48.0% vs 20.9%, $p=0.000$), be cognitively impaired (36.2% vs 9.4%, $p=0.000$), and have polypharmacy (50.0% vs 28.7%, $p=0.002$).

Outcome-wise, frail patients were more likely to be discharged to nursing homes (OR=3.4, 95% CI 1.2-9.5, $p=0.016$), be chair/bed bound (OR=3.5, 95% CI 1.4-8.7, $p=0.007$), and have a higher post-stroke Modified Rankin Score (OR=28.14, 95% CI 3.6-217.7, $p=0.000$).

Comparing CFS 5-6 to CFS 7-8, those with CFS 7-8 had higher in-patient mortality rates (OR=4.7, 95% CI 1.8-11.9, $p=0.001$) and 1-year mortality rates (OR=9.8, 95% CI 3.1-31.3, $p=0.000$). Logistic regression analysis confirmed that CFS 7-8 was an independent predictor of mortality.

Patients with pre-stroke CFS 7-8 had higher risks of inpatient complications, including acute kidney injury (OR=3.7, 95% CI 1.6-8.4, $p=0.001$), depression (OR=2.6, 95% CI 1.0-6.7, $p=0.043$), pressure ulcer (OR=4.4, 95% CI 1.8-10.5, $p=0.001$) and spasticity (OR=3.7, 95% CI 1.6-8.6, $p=0.002$).

Conclusion: Pre-stroke frailty is associated with poorer outcomes post-stroke. Knowledge of pre-stroke frailty levels can guide multidisciplinary management plans and improve outcomes in older adults with stroke.

FACTORS CONTRIBUTING TO MORTALITY AND PROLONGED LENGTH OF STAY AMONG OLDER PERSONS ADMITTED WITH ACUTE STROKE

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ABSTRACT

Introduction: Acute stroke in an older person can cause considerable morbidity, mortality, healthcare utilisation and cost. The aim of this study is to determine predictors of prolonged length of stay (PLOS) and mortality in older persons with acute stroke.

Methods: This retrospective observational study included adults aged ≥ 65 admitted to the geriatric medicine unit of our university hospital with acute stroke between January 2015-January 2020.

Results: To date, data on 223 patients (61.4% female) with an average age of 81 ± 6.31 years were included. Inpatient mortality rate was 17%. Stroke subtypes were: 74% lacunar, 11.7% total/partial anterior circulatory, 11.2% haemorrhagic, and 3.1% posterior circulatory. The median length of stay (LOS) was 14 days (0-119 days). Any LOS longer than 22 days (75th-centile) was taken as prolonged.

Inpatient complications observed were: Infection (urinary tract and/or pneumonia) (43.9%), acute kidney injury (AKI) (31.5%), spasticity (25.7%), stroke extension (18.9%), pressure ulcers (17.1%), depression (17%), haemorrhagic transformation (11.9%), seizures (4%), and pulmonary embolism (0.9%).

Multivariate logistic regression analysis revealed these independent predictors of PLOS: normal premorbid cognition (adjusted OR=3.45, 95% CI 1.28-9.3, P=0.014), stroke extension (OR=3.54, 95% CI 1.5-8.35, P=0.004), and infection (OR=3.9, 95% CI 1.85-8.2, P<0.001).

Predictors for inpatient mortality were premorbid Clinical Frailty Scale (CFS) 7-8 (OR=5.39, 95% CI 1.21-24.07, P=0.027), CKD stage 4-5 (OR=3.75, 95% CI 1.33-10.58, P=0.012), haemorrhagic transformation (OR=4.29, 95% CI 1.32-13.96, P=0.016), and infection (OR=4.1, 95% CI 1.56-10.78, P=0.004). Predictors of one-year mortality were CFS 7-8 (OR=9.16, 95% CI 1.02-82.53, P=0.048), CKD (OR=10.93, 95% CI 1.55-77.26, P=0.017), IHD (OR=4.16, 95% CI 1.07-16.24, P=0.04), and infection (OR=13.46, 95% CI 4.28-42.28, P<0.001).

Conclusions: We identified several factors associated with mortality and PLOS. This can help in formulating a multidisciplinary management plan including rehabilitation, prevention of complications, advanced care planning and the ceiling of care for older persons admitted with acute stroke.

ASSESSMENT OF EFFECT OF AGE ON GLASGOW COMA SCALE (GCS) AND NATIONAL INSTITUTES OF HEALTH STROKE SCALE (NIHSS) IN STROKE PATIENTS

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ABSTRACT

Introduction: Methods to quantify the neurological deficits among stroke patients include the NIHSS and GCS score. GCS is commonly used to measure the severity of brain damage by assessing the level of consciousness. NIHSS is developed to quantify the neurological disability in stroke patients. GCS is greatly affected by conscious level and delirium which affects conscious level occurs more commonly in elderly. This study aimed to assess the effects of age on the GCS and NIHSS scoring in patients with acute stroke.

Method: Adult patients (aged 18 and above) with acute stroke from January 2014 to December 2015 and were registered with complete data into the Malaysia National Neurology Registry (NNeuR) were included. Patients were categorized into young adults (aged 18–59) and elderly (aged 60 and above). GCS scores on admission according to the NIHSS categories (no impairment, mild, moderate, moderate to severe, severe) were analysed using Independent t test and Mann Whitney test to assess the difference between the age groups.

Results: 1002 stroke patients were included in the analysis. 435 (43.4%) were young adults while 567 (56.6%) were elderly. There were 411 (94.5%) and 545 (96.1%) ischaemic stroke in young adults and elderly patients respectively (p-value 0.220). In-hospital death occurred in 9 (2.1%) among young adults and 20 (3.5%) among elderly (p-value 0.172). Young adults and elderly had no significant differences in GCS scores in the NIHSS score 0 (14.73 vs 14.71, p-value 0.965), NIHSS score 1-4 (14.80 vs 14.81, p-value 0.940), NIHSS score 16-20 (12.60 vs 11.74, p-value 0.318) and NIHSS score 21-42 (10.12 vs 11.13, p-value 0.172). A significant difference in GCS score was only noted in NIHSS score 5-15 (14.62 vs 14.24, p-value 0.018).

Conclusion: There were no differences in the GCS score between young adults and elderly in most of the NIHSS categories.