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Poster presentation: P1

Stroke Simulation Workshops to Reduce the Door-In-Door-Out (DIDO) Time in the Emergency Department (ED), RIPAS HOSPITAL (RIPASH).

Afifah Othman, Linawati Hj Jumat, Hassan Adam

Emergency Department, RIPAS Hospital, Brunei Darussalam

Introduction:

The Emergency Department RIPASH has conducted several Stroke Simulation Workshops aimed to improve the preparedness of nationwide EDs and Emergency Medical Ambulance Services (EMAS) in handling suspected stroke patients and smoothen the transfer processes for eligible patients.

Methods:

The 1st Stroke Simulation Workshop was conducted on 26th June 2019 at ED RIPASH, facilitated by senior Emergency Physicians in collaboration with the Neurology Team from BNSRC. The workshop was funded by Boehringer Ingelheim Company, in collaboration with ANGELS (Acute Network Striving for Excellence in Stroke) Initiative. The target participants were Emergency doctors, nurses and EMAS team. The workshop consisted of multiple lecture sessions on stroke, followed by hands-on simulation drills using mannequins with real-time performance of processes (pre-intervention). The door-in-door-out (DIDO) time was recorded. The simulation was recorded via a GoPro device, analysed and re-attempted for any improvements in time (post-intervention). Following the 1st Stroke Simulation Workshop, "Stroke Activation Protocol" checklists were drafted for specific use by ED doctors, nurses and EMAS. The devised checklists were put to trial use in the 2nd workshop held on 29th August 2019 at ED RIPASH with different participants. The checklists were further improved based on feedback obtained from all the participants during the workshop.

Results:

The door-in-door-out (DIDO) time for the 1st workshop was 21.57 minutes (pre-intervention) and 16.33 minutes (post-intervention). For the 2nd workshop, the door-in-door-out time was 20.40 minutes (preintervention) and 13.17 minutes (post-intervention).

Conclusion:

There was an improvement in the door-in-door-out (DIDO) timings following the lecture sessions and simulation drills, plus an improvement of DIDO timing in the 2nd workshop following the implementation of the "Stroke Activation Protocol" checklists.

Keywords: Acute stroke, Emergency Services Hospital.

Poster presentation: P2

Outcomes of Cranioplasty after Decompressive Craniectomy.

Shie C, Antony D, Thien A

Department of Neurosurgery, Raja Isteri Pengiran Anak Saleha (RIPAS) Hospital, and Department of Neurosurgery, Brunei Neuroscience, Stroke and Rehabilitation Centre

(BNSRC), Brunei Darussalam

Introduction:
Cranioplasty is an additional procedure to reconstruct the cranial vault of patients who had craniectomies. This study aims to investigate the complication outcomes and failure rates of cranioplasties performed locally.

Material and Methods:
We performed a retrospective cohort study of patients who underwent cranioplasty at the Raja Isteri Pengiran Anak Saleha Hospital, and the Brunei Neuroscience, Stroke and Rehabilitation Centre between January 2014 and June 2019. Data of the previous craniectomy (indication for craniectomy, Glasgow Outcome Score, site, and any post-operative complications) and of the cranioplasty (time interval to cranioplasty, type of implant used, type of complications, implant failure and duration of follow up) were collected by reviewing the medical notes of patients.

Result:
89 patients were included in the study. 68.5% were male and the median age was 48 years old (37 - 59). 79 autologous bone, 6 polymethyl methacrylate and 4 titanium cranioplasties were performed. The predominant indication for craniectomy was intracerebral haemorrhage (50.6%), and the median time interval to cranioplasty was 8.9 weeks (6.4 - 12.6). The overall cranioplasty complication rate was 19.1%, the most owing to autologous bone resorption (3.4%). Cranioplasty failure (defined as the removal or revision of cranioplasty) was found in 10.1%. There were no factors associated with the increased risk for developing complications and implant failure.

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Conclusion:
This study represents the first evaluation in the local setting of cranioplasty and its complications. The overall complication rate of 19.1% is consistent with those reported in the literature and is not negligible.

Keywords: Cranioplasty; complication; autologous bone; titanium; polymethyl methacrylate.

Poster presentation: P3

Strokes and Transient Ischemic Attacks in Young Adults in Brunei Darussalam: Demographics, Risk Factors, Etiology and Thrombolysis.

JT Colacion, HL Naing, N Harun, DN Yassin
Brunei Neuroscience Stroke and Rehabilitation Centre, Brunei Darussalam (BNSRC)

Introduction:
Strokes in young adults only comprises 10-15% of all stroke cases. This study aims to investigate the demographics, risk factors, etiologies and thrombolysis of strokes and transient ischemic attacks (TIA) among young adults admitted in BNSRC from December 2018 to May 2019.

Materials and Methods: We retrospectively reviewed logs and medical files of patients

admitted for stroke and TIA in our centre. Patients aged 45 years or less were included. Data extracted were demographics, baseline National Institutes of Health Stroke Scale (NIHSS) scores, medical and vascular risk factors, and thrombolysis treatment and outcome. Ischemic stroke etiologies were classified according to the TOAST criteria.

Results:

Of the 233 strokes and TIA admissions, 39 (17%) were young adults. The mean (SD) age was 39.2 + 5.3 years; 74% were males. There were 34 (15.2%) patients with completed strokes, most were infarctions (64.7%). There were high incidences of hypertension (61.5%), diabetes mellitus (33.3%), dyslipidemia (25.6%), and methamphetamine abuse (15.4%). Majority (53.8%) of the patients have multiple risk factors. Small vessel disease was the most common etiology (40.9%) among ischemic strokes. The median NIHSS score was 9 (interquartile range, 4-12). Intravenous thrombolysis was given to 2 (7.4%) patients, both were discharged within 7 days and none developed symptomatic intracerebral hemorrhage.

Conclusion:

This study is the most recent and representative profile of stroke and TIA in young adults in Brunei Darussalam. Incidence, demographics, and thrombolysis rate are comparable with international data. There is, however, an alarmingly higher incidence of hypertension and multiple comorbidities among our patients.

Keywords: stroke; transient ischemic attack; young adults, risk factors, thrombolysis.

Poster presentation: P4

Factors Associated with Employment Status Post Discharge of Patients Admitted Under Rehabilitation Medicine at Brunei Neuroscience Stroke and Rehabilitation Centre.

Lee CL

Rehabilitation Medicine, Rehabilitation Department, Brunei Neuroscience Stroke and Rehabilitation Centre, Pantai Jerudong Specialist Centre, Brunei Darussalam.

Introduction:

Returning to work is one of the main components of reintegration into society for patients after rehabilitation. This is a retrospective study looking at factors effecting employment status post discharge of patients admitted under Rehabilitation Medicine at Brunei Neuroscience Stroke and Rehabilitation Centre.

Methods:

Patients admitted from 1st September 2017 to 31st December 2018 were included. Data collected were age, gender, marital status, employment status (government vs. private sector), and functional outcome score (Shah's Modified Barthel Index,MBI). Patients were divided into 2 groups, returned to work vs. stopped working.

Results:

Of the 127 admissions, 53 patients (98% stroke, 2% Parkinson's disease) were employed prior admission. After discharge, 20 (37.7%) returned to work, 11(20.7%) stopped working, 21(31.6%) were on medical leave and 1(2.0%) died. Mean age of the return to work group was 52±9 and stopped working group was 59±10 (p=0.038). In the returned to work group, mean time to return to work was 178±158 days. Of this, 13(65%) worked for government and 7(35%) worked for private sector. In the stopped working group, 1(9%) worked for government and 10 (91%) worked for private sector (p=0.003). The MBI score at discharge of returned to work group was 87±11 and stopped working group was 73±24 (p=0.033). Marital status

and cognitive status did not show any clinical significance.

Conclusion:
This study shows less than half of patients successfully returned to work with mean time of approximately 6 months. Favorable factors to return to work were younger age, working for government sector and higher MBI scores.

Key words: Rehabilitation, return to work.

Poster presentation: P5

Patient Non-Attendance in Neurology Outpatient Department: A Service Evaluation.

Grajewski KE, Hj Sufardi MS, Saman SN, Awg Mohd Ali DNH, Pg Ali DSN, Sabaricos JD, Sidek R, Pg Hj Ismail PZ, Muliani Hayat SNJ, Ibrahim ESR, Kalman S.
Outpatient Department, Brunei Neuroscience Stroke and Rehabilitation Centre, Pantai Jerudong Specialist Centre, Brunei Darussalam

Introduction:
Patient non-attendance is a prevalent problem in the hospital outpatient setting that is not only a drain on resources but also disrupts the flow of service. There has been a lack of research on why patients did not attend clinical appointment in South East Asia. Thus, a study was conducted in Brunei Darussalam to find out the factors that may lead to patient non-attendance and therefore identify possible steps that may be taken to counter them.

Methods:
Between May to July 2019, a survey was given mainly via WhatsApp to patients who do not attend their clinical appointments at the Neurology Outpatient Department in Pantai Jerudong Specialist Centre.

Results:
During this period, a total of 1606 patients were scheduled for clinical consultation and/or procedure. Out of these patients, 1338 attended their appointment while 268 failed to attend. In this survey, participants were asked to select a reason that best reflect their case. Results from this study found that the most prominent reason was that patients had forgotten (29.5%).

Conclusion:
The implication of this study is to have a better notification or reminder system and improve access to the hospital.

Keywords: Neurology, Asia, Brunei, Outpatient, Non-attendance.

POSTER PRESENTATION — ALLIED HEALTH PROFESSIONAL

Poster presentation: AO1

Intensive task-oriented training upper limb physiotherapy management in a group setting improves upper limb functions for acute stroke patients in Brunei- a retrospective study evaluation.

Nuryasmin AB, Nik NA.
Rehabilitation Department, Pantai Jerudong Specialist Centre, Brunei Darussalam.

Introduction and Aim:
The ability to perform Task-Oriented Training (TOT) upper limb physiotherapy management with repetitive movement is important predictor of functional outcome in post stroke individuals worldwide. However, studies evaluating the effect of performing TOT in a group setting for acute stroke patients in Brunei are not well known.

Method:
A retrospective service evaluation was done on August 2018 to August 2019 with a total of

10 stroke patients consisting both male and female with upper limb impairment met the inclusion criteria for the study. The age range for the patients are between 30-70 years old and one carer is available in every therapy session. Each group consist of at least three patients. Three different TOT upper limb were given by the physiotherapist in each session. The duration of the group therapy is at least one hour. Objective assessment includes Manual Muscle Test (MMT) and Motor Assessment Scale (MAS), which are assessed every three months.

Result:

Eight patients improves in upper limb muscle power and upper limb functional movement three months post group therapy while two patients shows no significant change.

Conclusion:

Upper limb group therapy with repetitive TOT exercises shows improvement in upper limb function for acute stroke patients in Brunei. However, the study does now show the effectiveness of family support on giving motivation for patient, and home exercise programme as this two factors may influence the improvement and outcome of patient's upper limb function.

Keywords: Stroke, Stroke Rehabilitation, Physiotherapy, Upper extremity.

Poster presentation: AO2
Rehabilitation of child with post-operative Torticollis: A case Report.

Murugavel M[1], Nelson J[2]

[1]Department of Rehabilitation and [2]Department of MFPRSC, Pantai Jerudong Specialist Centre, Brunei Darussalam

Introduction:

Rehabilitation is challenging for early childhood stage with torticollis due to their prolonged habitual posture, less exercise adherence and impaired perception of midline which can lead to functional limitation. There is lack of evidence based physical therapy approach in treating post-operative torticollis among children.

Materials and Methods:

A 7yr old child with post-surgical SCM release has been treated with Movement retraining techniques through play-based exercises with visual and proprioceptive cues for improving her neck ROM, ADL and Pain measured at baseline and after 8 weeks.

Result:

At the end of the 8 weeks, there is significant improvement in their pain, rom and functional activities.

Conclusion:

Movement retraining through play-based exercises are effective in improving neck movements and habitual posture. It engages children to adhere with exercises which enhances the functional activities and social participation in children with post-operative torticollis.

Keywords: Torticollis, Physiotherapy, Sterno-cleido mastoid, Exercise, Rehabilitation.

Poster presentation: AO3
Medical Social Worker's Evaluation on Factors Related to Carer Issue for Neurostroke and Rehabilitation Patients in Pantai Jerudong Specialist Centre.

Siti Fairuz Abd Latiff

Medical Social Work Department, Pantai Jerudong Specialist Centre, Negara Brunei Darussalam

Introduction:

Medical Social Work (MSW) Department have been receiving referrals from Brunei Neurosci-

ence, Stroke and Rehabilitation Centre (BNSRC) for different social problems. One of the highest reasons why a patient is referred is due to carer problem. Thus, our department decided to collect information to determine specific issues related to this problem.

Methods:

The information collected is based on data collected using Database Access for MSW patients from 2018 until August 2019. The data is filtered for those with carer issue. The list is then categorized into different factors identified by MSW during MSW assessment and intervention.

Results:

A total of 53 patients is identified to have carer problems. The common problems found amongst the carer are factors related to age (17.64%), responsibilities (45.88%), financial strains (5.88%), having health condition (3.53%), family conflict (11.76%), patient history of substance abuse (3.53%), living alone (9.41%) and carer with different expectation on patient's condition (2.35%). Most of these patients are observed to have more than one factor and have caused a delay in discharge from the hospital.

Conclusion:

This information needs to be done on a larger scale to recognize other problems encountered by carers of neuro-stroke patients. Ensuring that both carer and the patient looked after have a good quality of life and their needs met; further relevant support will be required to support and empower carers such as but not limited to introducing respite care, volunteer services, carer's allowance or working hours flexibility.

Poster presentation: AO4

Patterns of Hip Rotation Range of Motion Among University Students with Different Level of Physical Activity.

Agnes J

Department of Rehabilitation, Pantai Jerudong Specialist Centre, Brunei Darussalam

Introduction:

Hip range of motion (ROM) varies with subject characteristics and individuals reportedly have reduced physical activity from adolescence to adulthood. This study aimed to find out the patterns of hip rotation ROM among three groups of physical activity level based on the International Physical Activity Questionnaire (IPAQ) Long Form and to compare the patterns between groups.

Material and Methods:

75 university students from MAHSA University Malaysia (June 2016 - August 2017) participated with 25 participants in each group; Low, Moderate or High IPAQ. The passive hip internal rotation (IR) and external rotation (ER) were measured in prone position. The results were compared by using one-way analysis of variance (ANOVA).

Results and Conclusion:

The Low and High categories demonstrated similar patterns in which all the ER components were generally higher than the IR components. The Moderate category showed conflicting results but the differences between the IR and ER components were less than 5°. One-way ANOVA revealed a significant difference at $p<.05$ between group on the left IR ($p=.041$) and the total IR ($p=.036$) with the High category having significantly lower mean values than the Moderate category. The results suggested that the Moderate category have the ideal hip ROM with less than 5° differences in the mean values between the IR and ER components and the total left and right ROM. Even though the Low and High categories displayed similar patterns, the High category had lower ROM in all readings. This study concluded that physical activity level influenced hip ROM.

Keywords: Hip, range of motion, physical activity.

POSTER PRESENTATION — DOCTORS

Poster presentation: D01
Outcome following decompressive craniectomy in ischemic and haemorrhagic Stroke- A retrospective service review of the Brunei Neuroscience Stroke and Rehabilitation Centre.

GC Chan, DSNA Pengiran Tengah
The Brunei Neuroscience Stroke and Rehabilitation Centre (BNSRC), Pantai Jerudong Specialist Centre, Brunei Darussalam

Introduction:
Decompressive craniectomy (DC) greatly improves mortality in patients with space-occupying middle cerebral artery infarction (SO-MCA), cerebellar infarction (CI) and possibly Intracerebral haemorrhage (ICH). Disability outcomes remain uncertain. Our centre manages most stroke in Brunei Darussalam. We aim to report outcome of patients who underwent DC.

Methods:
Retrospective casenote analysis of patients who underwent DC from 2011 to 2016 for demograhic, clinical variables, mortality at 1,6,12 months and functional disability score i.e. modified rankin score (MRS) at 6 months and 1 year (favourable outcome MRS $\leq$ 3 , unfavourable outcome MRS $\geq$ 4).

Results:
63 patients underwent DC during this period [39 male (62%), 24 female (38%)]. Median age was 51.3 years (24-79). 37 patients (59%) had infarctions [SO-MCA 29 (75%); CI 8 (25%)]. 26 (41%) patients had ICH. Mortality at 1 month was 14%, 6 month 17% and 1 year 27%. MRS $\leq$ 3 was documented for 32% of patients at 6 months and 39% at 1 year. MRS $\geq$ 4 was documented for 68% of patients at 6 months and 61% at 1 year.

Conclusion:
Our cohort of patients requiring DC was younger compared to the mean age of stroke patients in Brunei Darussalam (60 years). Our mortality rate post DC is consistent with international studies. About 1/3 of patient will have favourable outcome following DC with 2/3 patients having severe disability at 6 months and 1 year. This preliminary data supports the need for increased stroke awareness and will generate further study of mortality and disability in our patients.

Keywords: decompressive craniectomy, stroke, mortality, morbidity.

Poster presentation: D02
Rehabilitation Centre (BNSRC) from July 2018 to June 2019: A Service Review.

Colacion J[1], Leong CH[2], Kifli K[2], Zulfiqah[2], AMI, Yassin DN[1]
[1]Brunei Neuroscience, Stroke and [2]Rehabilitation Centre, Pantai Jerudong Specialist Centre, Brunei Darussalam

Introduction:
Stroke is the fourth leading cause of mortality in Brunei Darussalam. Intravenous Alteplase is the accepted effective treatment for acute ischemic strokes within 4.5 hours of onset. However, less than 5.0% of patients present within the thrombolytic window.

Materials and Methods:
A retrospective service review was conducted looking into the utilization of IV thrombolysis among admitted ischemic stroke patients of BNSRC from July 2018-June 2019. Patients who presented within 4.5 hours of onset, and given IV thrombolysis were included. Data extracted from medical files were baseline demographics and NIHSS scores, time of

symptom-onset-to-primary hospital and BNSRC (SOTPh/SOTBnsrc), door-to-imaging and -needle (DTI/DTN) times, length of hospital stay, and Modified Rankin Scale (MRS) scores.

Results and Conclusion:

Of the 287 admitted stroke patients, 77.4% have ischemic strokes. Thirty-eight (13.2%) presented within the thrombolytic window, and 23 received IV rTPA (10.4% thrombolysis rate).

The patients mean age was 62.4+15.9 years, and hypertension was the leading vascular risk factor (78.3%). The median admission NIHSS score was 8; the baseline MRS score was 4. The mean time of SOTPh and SOTBnsrc were 103 minutes and 164 minutes, respectively. While the mean DTI and DTN time were 22.1 minutes and 47.5 minutes, respectively.

Most patients have improved (56.5%) or unchanged (34.8%) MRS scores, and nearly half (47.8%) were independent (MRS 0-2) on discharge. The median hospital stay was 19 days. There was 1 inpatient mortality.

In conclusion, we have more patients who presented within the thrombolytic window, but have comparable thrombolysis rate to most international data (5.7%-21.7%).

Keywords: Stroke, thrombolysis, thrombolytic window, thrombolysis rate.

Poster presentation: D03

Audit on the outcomes of Intracranial Haemorrhage (ICH) patients in adult ICU, Brunei.

Nurulhuda M, Tan Shi Ying.
Critical Care Medicine Department, Hospital RIPAS, Brunei.

Introduction:

Intracranial Haemorrhage (ICH) is a life-threatening condition that demands serious attention not only from the neurosurgical team and neurology team but also from the critical care medicine.

Aim:

To identify the number of patients with ICH and the outcomes of this group in ICU.

Method:

An audit involving patients diagnosed with intracranial haemorrhage that were admitted to ICU from 1st January 2018 until 31st December 2018.

Result:

A total of 60 patients were diagnosed with intracranial haemorrhage admitted to adult ICU. The mean age of this studied group was 48.75 ± 15.8 years old. Male was dominant gender with 52% of the studied group. Intracerebral haemorrhage is the commonest type of intracranial haemorrhage with 55%. Unequal pupils on admission was related to 78% of mortality, Glasgow Coma Scale(GCS) of 3 to 5 was associated with 82% of mortality, conservative management was associated with 81% of mortality and hypertensive emergency was associated with 67% of mortality.

Conclusion:

Unequal pupils on admission, GCS 3-5 on admission, hypertensive emergency and conservative management were associated with high mortality in ICH patients admitted to ICU.

Keywords: Intracranial haemorrhage, ICU.

Poster presentation: D04

Audit on Antiplatelet Use in the Secondary Prevention of Ischemic Stroke.

Hazirah Shafri
Neurology Department, RIPAS Hospital, Brunei

Introduction:
Stroke is the leading cause of morbidity and mortality worldwide. In Brunei Darussalam, it is the 4th highest cause of death in Brunei Darussalam. An average of 300 cases of stroke were admitted to hospital annually. In general, roughly 90% of stroke are ischaemic stroke with remaining 10% accounts for haemorrhagic stroke. Patients who had a transient ischaemic stroke or ischaemic stroke have increased risk of recurrent in the future. Secondary prevention of ischaemic stroke in terms of the use of anti-platelet is important in the clinical practice. This study was done to evaluate whether the use of antiplatelet in the secondary prevention of ischaemic stroke is consistent with the current guidelines.

Material and Methods:
Current NICE guidelines on antiplatelet use in ischaemic stroke was used in this study as a standard guideline. Patients data were collected from Neurology admission list from January 2018 – June 2018. Only patients with ischaemic stroke and transient ischaemic attack admitted at Raja Isteri Pengiran Anak Saleha (RIPAS) Hospital were included.

Result and Conclusion:
Eighty nine per cent (89%) of patients presented with an ischaemic stroke received aspirin 300mg bolus and followed by 100mg once daily, whilst 16% of patients were only started on 100mg dose of aspirin. There is an inconsistency in the antiplatelet prescription in the secondary prevention of ischemic stroke. It is hoped that this study can help clinicians to standardize the antiplatelet prescription in stroke patients in Brunei Darussalam for better stroke management.

Keywords: antiplatelet agents, aspirin, strokes, acute cerebrovascular accidents.

Poster presentation: D05
Spectrum of Inflammatory Demyelinating Diseases of the Central Nervous System at Brunei Neuroscience Stroke and Rehabilitation Centre (BNSRC).

Yong Chee Shin, Sunithi Mani, Mathew Alexander
Brunei Neuroscience Stroke and Rehabilitation Centre, Pantai Jerudong Specialist Centre, Brunei Darussalam

Introduction:
Inflammatory demyelinating diseases (IDD) of the central nervous system affect prevalently young adults and carry high morbidity if not recognized promptly for treatment initiation. Unfortunately, IDD demonstrate great heterogeneity making diagnosis and management challenging.

Materials and Methods:
Retrospective descriptive study. Data was collected from review of clinical notes of patients diagnosed with IDD in the last one year at BNSRC.

Results:
Eight patients in total. Female preponderance at 63% (n=5). Mean age at diagnosis was 35 (range 22-45) years. Four had monosymptomatic presentation. Six presented with visual impairment (2 unilateral; 4 bilateral sequential), 3 with weakness (1 monoparesis, 1 hemiparesis and 1 quadraparesis), 2 with cerebellar symptoms and 1 with sphincter disturbances. All had abnormal evoked potential studies. Seven had cerebrospinal fluid studies: 4 normal protein; 3 positive oligoclonal bands. Four were diagnosed with Neuro Myelitis Optica Spectrum Disorder based on Wingerchuk Criteria (2 positive Aquaporin-4 IgG), 3 with Multiple Sclerosis based on MacDonalds's criteria and 1 with Acute Disseminated Encephalomyelitis (probable Myelin Oligodendrocyte Glycoprotein Antibody-related). Mean duration of follow-up was 174 (9 to 365) days. All had

pulse intravenous methylprednisolone acutely. 6 are on disease-modifying drugs. One patient had clinical relapses at one month then eight months from onset. At last clinical review, 2 patients had Expanded Disability Status Scale (EDSS) of 6.0, remaining patients' EDSS < 3.0.

Conclusion:

There is a wide spectrum of IDD in Brunei. A long-term prospective study is required to characterize the different phenotypes for accurate diagnosis and to identify factors that predict outcomes.

Poster presentation: D06
Spectrum of Neurological infections in Brunei Darussalam.

Yong Chee Shin, Norazieda Yassin
Brunei Neuroscience Stroke and Rehabilitation Centre, Pantai Jerudong Specialist Centre, Brunei Darussalam

Introduction:

Early accurate diagnosis of neurological infections are crucial to allow prompt directed treatment to reduce long term complications. There is a lack of epidemiological data on neurological infections in Brunei.

Materials and Methods:

Retrospective descriptive study. Data was collected from clinical notes of patients referred to the neurology unit from January 2016 to October 2018 who were treated for probable or definite neurological infections.

Results:

A total of 44 patients. Male preponderance at 66% (N=27). Mean age 45.5 (range 23-75) years. 67% had some form of immunosuppression: 15 Retroviral disease (9 new), 10 Type 2 Diabetes (1 new), 1 on steroids and 1 Thalassaemic. Patients were polysymptomatic at presentation. The most prevalent presenting symptoms included encephalopathy (52%), fevers (43%), headaches (43%), seizures (25%) and focal neurological deficits (20%). 74% had abnormal radiological imaging with 4 having spinal involvement. 66% (N=29) had cerebrospinal fluid (CSF) studies. All CSF findings were abnormal. 70% had a causative pathogen identified with 50% yield from CSF. Pathogens identified included Streptococcus Sp(25%) Cryptococcus Sp (19%), Syphilis(16%), Tuberculosis(16%), Klebsiella Sp(13%), Pseudomonas Sp(3%), Sphigomonas Paucimobilis(3%), Japanese Encephalitis(3%) and Toxoplasmosis(3%). 37% had poor outcomes at discharge (Modified Rankin's Scores of 3-5). Mortality 30% (N=13). Amongst those who died; 60% (N=9) were immunocompromised with 6 newly diagnosed retroviral diseases. 38% had no pathogen identified, the most prevalent identified pathogens were Tuberculosis(23%) and Cryptococcus Sp(23%).

Conclusion:

Neurological infections carry high morbidity and mortality in Brunei. A long-term prospective epidemiological study is suggested to facilitate vigilance about emerging and re-emerging infection.

Poster presentation: D07
Visual Rehabilitation in Hemianopia: Case Report.

Ramalingam M, Abdullah AN, Joshi N.
Department of Ophthalmology, RIPAS Hospital, Brunei Darussalam

Purpose:

To report a case of 53-year-old male with left homonymous hemianopia fitted with Peli-designed prisms as a low vision aid in a 6-week period.

Methods:

Case report based on clinical information from

BruHIMS and patient observation on use of Peli-designed prisms. Spectacles were fitted with 40 diopter press-on TM Fresnel prism on the side of the visual field loss. Patient wore the spectacles for six weeks. Lateral visual field expansion, perceived visual direction and perceived quality of life were evaluated.

Results:

Patient chose to continue to wear the prism spectacles after six weeks and reported reduced difficulty noticing obstacles on the affected side of visual field loss.

Conclusions:

Training for six weeks in the use of the Peli-designed prisms benefitted in obstacle avoidance. Patient reported an increased confidence navigating public places. This is an interesting case because the use of Peli-designed prisms may show promise in rehabilitating patients experiencing homonymous hemianopia in Brunei Darussalam.

Keywords: Homonymous hemianopia, Visual rehabilitation, Peli Prisms.

Poster presentation: D08

A Case Report: Unusual post-operative complication of oxidized regenerated cellulose – migration of Surgicel into the ventricles of the brain.

Masri A

NeuroIntensive Care Unit, Brunei Neuroscience Stroke and Rehabilitation Centre, Pantai Jerudong Specialist Centre, Brunei

Introduction:

Surgicel or absorbable oxidized regenerated cellulose is extensively used intraoperatively as a very useful adjunct for haemostasis. Haemostasis is imperative in intracranial surgeries. Retention-associated complications of oxidized regenerated cellulose have been reported in the literature.

Case Report:

This is a case report of a 25yr old male who presented to with a large right basal ganglia hypertensive haemorrhage. He underwent a decompressive hemicraniectomy and haematoma evacuation. Surgicel was used as a haemostasis adjunct in the dural aspect. Post-operative neuroimaging several days later revealed a new spherical mass in the right lateral ventricle which was mobile and initially thought to be an abscess. The mass was removed surgically and histology revealed features consistent with oxidized cellulose.

Conclusion:

Retained oxidized regenerated cellulose can mimic various entities. It is important to note what haemostatic agent was used intra-operatively and to be cautious when using oxidized regenerated cellulose in non-expansile spaces such as the cranium.

Keywords: Surgicel, Oxidized Regenerated Cellulose, Complication, Brain, Surgery.

Poster presentation: D09

Cortical Sinus Venous Thrombosis in Brunei: A Retrospective Case Series.

Izzaan Awangku, Han Lin Naing, Naomi Harun, DK Norazieda, DK Nur'Ashikin, Sunithi Mani & Mathew Alexander

Brunei Neuroscience Stroke and Rehabilitation Centre, Pantai Jerudong Specialist Centre, Brunei Darussalam

Background:

Cerebral Venous Sinus Thrombosis is a condition that affects all age groups and could be a diagnostic dilemma because of the heterogeneity in presentation.

Aim:

This is a retrospective study describing the clinical spectrum, aetiology, therapeutic re-

sponse and outcome of the CVT cases in Brunei Darussalam.

Method:

The patients previously admitted at the BNSRC Brunei from 2018 until 2019 diagnosed with CVT were identified from the centre's patient registry. Their details were then collected from the medical record department and analysed.

Results:

There were seven patients (3M/4F) with confirmed diagnosis of CVT. The mean age was 33 for the males and 43.5 for the females. Symptoms at presentation were variable with headache being the most common (71%). At least one CVT risk factor was identified in every patient. 85% patients were diagnosed during the acute stage and 15% was diagnosed within the sub-acute stage. On imaging at admission, 3 patients had thrombosis in Superior sagittal sinus, 4 patients had transverse sinus involvement, 5 patients had cortical veins involvement and 1 patient had cavernous sinus involvement. Haemorrhage was identified in the brain imaging of every patient. Heparin treatment was the mainstay and one patient develop a large hemispheric infarction necessitating decompressive hemicraniectomy. Two patients required ICU admissions. At discharge, 5 patients had MRS of 0 and one patient that required hemicraniectomy had a score 4.

Conclusion:

CVST is an eminently treatable condition with a good outcome and only 1 patient needed decompressive Hemicraniectomy, which was life saving.

POSTER PRESENTATION — NURSES

Poster presentation: N01

Incidence and Prevalence of Surface Colonization Among Patients Admitted in the High Dependency Unit, BNSRC: A 12-Month Service Evaluation Part A.

Lim KA, Danny AM, Gregorio JP, Rakawi SNI, Othman UK, Colacion, JT
Brunei Neuroscience Stroke and Rehabilitation Centre, Pantai Jerudong Specialist Centre

Introduction:

Swabbing of the axillary, groin and nasal regions is part of the routine protocol upon patient admission in BNSRC. However, its relevance and impact on patient care has never been evaluated. This review was conducted to evaluate the incidence and prevalence of surface bacterial colonization of patients in the BNSRC HDU picked up through swabbing.

Methods:

We retrospectively review the medical files of patients admitted to the HDU from September 2018-August 2019. Patients whose surface swabs grew isolates of potential pathogens were included. Patients' baseline demographics, diagnosis, level of dependency, source of isolates, culture and sensitivity, intervention and decontamination, and outcome were listed.

Results and Conclusion:

There were 12 of the 1021 admitted patients have surface colonization. The estimated incidence and prevalence were 0.78% and 1.17%, respectively. The mean age of was 49.6 ± 16.4 years, 58% were females. Most of these patients have stroke (25%) and were mostly bedbound and functionally dependent. The most common pathogens were Acinetobacter baumannii (91.6%) and Methicilline-resistant Staphylococcus aureus (8.3%). Fifty percent has extreme-drug resistant isolates. These patients were mostly transferred from other institutions (66.6%) or were stepped down from the Neuro-ICU (33.3%) Most of these patients were then isolated and underwent decontamination with chlorhexidine and intranasal mupirocin as per protocol.

Five patients were deisolated after decontamination procedure.

In concusion, there was a relatively low burden of surface colonization among the HDU BNSRC patients. However, the potential danger of these pathogens cannot be underestimated.

Keywords: surface colonization, swabbing, Prevalence, *Acinetobacter baumannii*, Methicilline-resistant *Staphylococcus aureus.*

Poster presentation: N02

Incidence and Prevalence of Surface Colonization amongst Patients Admitted in Neurology Ward, BNSRC: 12-Month Service Evaluation Part B.

Zacarias JK, Ortiz RJ, Tabanera R, Ingal E, Torrilla FRT, Diones MKA, Thomas S, Colacion JT

Brunei Neuroscience Stroke and Rehabilitation Centre, Pantai Jerudong Specialist Centre

Introduction:

Colonization is considered as the first stage of microbial infection. It is the establishment of the pathogen at the appropriate portal of entry. This study tackles on the screening of bacterial infections and determining the incidence and prevalence of each organism present among patients in BNSRC PJSC Neurology Ward through swabbing.

Methods:

We performed a retrospective review of patients admitted to BNSRC Neurology ward from September 2018 to August 2019. Swabs were taken from the nasal, axilla, and groin of patients upon admission. Patients whose swabs grew surface pathogens were included. Suspected contaminated percutaneous endoscopic gastrostomy tube site and wound swabs were also taken.

Results and Conclusion:

Among the 591 cases reviewed, 0.17% had positive isolates. The estimated incidence and prevalence were 1.52% and 1.69% respectively. The mean age was 52.5 ± 16.7years, 60% were female. 40% of which are stroke cases, and were mostly bedbound, functionally dependent patients. The most common pathogens present were *Acinetobacter baumannii,* 90%, and *Pseudomonas aeroginosa,* 10%, 70% of these were isolated in the groin. 90% had extreme-drug resistant isolates. 40% of these patients were transferred from other institutions, or stepped down from ICU/ HDU, 60%. All were isolated and decontaminated with chlorhexidine and intranasal mupirocin as per protocol. Five patients were deisolated after the decontamination procedure.

In conclusion, there was a relatively low burden of surface colonization among BNSRC Neurology Ward patients. However, the surveillance of this antibiotic-resistant colonization is needed to optimize the management of decontamination and antibiotic therapy since the potential danger of these pathogens cannot be underestimated.

Keywords: Colonization, *Acinetobacter baumannii*, prevalence, swabbing, decontamination.

Poster presentation: N03

Incidence, Prevalence and Associated Risk Factors of Pressure Injury (PI) and Wound Care Treatment among Stroke Patients in Neurology Ward of the Brunei Neuroscience, Stroke and Rehabilitation Centre in 2017-2018 : a Preliminary Service Review.

Palupi R, Tan Teng AI, Hj Abd Rahman HAZ, Vincent AP, Ibrahim DH , Salim JA, Veronica

AP, Ibrahim DH , Salim JA, Veronica R, Thomas T, Thomas S; Colacion JT
Brunei Neuroscience Stroke and Rehabilitation Centre, Pantai Jerudong Specialist Centre, Jerudong BG3200, Brunei Darussalam

Background:
Stroke cause patients an endless spectrum of incapacities that places them at high risk for developing PI. Furthermore, development of PI can also be a quality of care indicator for stroke patient.

Objective:
The purpose of the study is to: 1. determine the prevalence of pressure injury among stroke patients admitted in NW from 2017-2018; 2. describe the identified patients' demographics, association with immobility and fecal incontinence and 3. describe the wound care regimen employed to these patients.

Methods:
This is a Preliminary Service Review study. Data were derived from medical files of identified patients. Relevant data were tabulated and analyzed via Excel.

Result:
There were 740 stroke patients admitted within 24 months. The mean annual prevalence rate of pressure injury was 7.0% (7.6% for 2017; 6.5% for 2018). Of the patients, 58.0% were male; 63.1% are 60 years or older; more than half (58.8%) had grade 2 PI; and majority (80.8%) were located over the sacral region. 40.4% patients were stepped-down from the Neurology ICU and HDU,; 48.1% were bed-bound and 40.4% with fecal incontinence.

Conclusion:
This is the first study to describe the prevalence and incidence rates of PI amongst institutionalized stroke patients in the sole neuroscience centre in Brunei Darussalam. The patient demographics, association to immobility and fecal incontinence, and treatment interventions were also described and established. We recommend a prospective and analytical follow-up study to further establish the degree and impact of PI to our centre's standard of stroke care.

Keywords: pressure injury, wound care, stroke patient, prevalence, incidence rate.

Poster presentation: N04
Identifying and Supporting the Needs of Stroke Caregivers: A Literature Review.

Daud N, Thomas S, Hasni N, Syawani DS, and Johara S
BNSRC Neuroward, Pantai Jerudong Specialist Centre, Brunei Darussalam

Introduction:
Stroke is the leading cause of disability around the world. Stroke survivors are dependent on their caregivers for their Activities of Daily Living (ADLs). Caregivers of stroke survivors are often left unprepared to take up their new responsibilities and this affect their physical and mental well-being. By reviewing the effects of caregiving to the caregivers and stroke survivors, this study will identify the needs of caregivers and the recommendations to support the identified needs.

Method:
The database used for literature search are MEDLINE and Elsevier and only published articles from 2015-2019 are considered. 32 articles were screened based on their abstract and title and 6 articles were selected for this literature review based on the relevancy to the aim of this study.

Result:
Caregivers are vulnerable to negative impacts without a sufficient support system to address their needs. Common needs identified include

skills training, health information, emotional support, treatment support and support network. Their needs differ from one phase to another, with the inpatient phase before discharge being the most essential. As the needs are identified, recommendations are made to facilitate the caregivers' transition from the inpatient phase to discharge or post-hospitalisation. This includes making assessment on the preparedness of caregivers to care for the patients, providing helpful health education and by providing different kinds of support such as emotional support, equipment resources and support group.

Conclusion:

There is still a huge gap for supports given to stroke caregivers particularly in terms of psychological and social support. As for the assessment of needs, local health departments handling stroke patients may adopt a standardised questionnaire and a stroke discharge checklist can also be used by patients and caregivers. Relevant stakeholders should consider research on the adverse impacts of caregiving to both the caregivers and stroke survivors to provide a supporting system that can cater for the needs of caregivers while also improving the long-term quality of care for stroke survivors.

Keywords: stroke, family, caregiver, needs.

Poster presentation: N05
Exploring the initial experience of stroke patients related to prehospital delay in Brunei.

Hamizah Hj Md Yamin[1], Dk Siti Nur'ashikin Pg Dato Paduka Hj Tengah[2], Ajizah@Darinah Hj Abd Manaf[3], Hajah Salmah Mohd Noor[4].

[1]Nursing and Midwifery, PAPRSB Institute of Health Sciences, Universiti Brunei Darussalam, [2]Brunei Neuroscience Stroke and Rehabilitation Centre, Pantai Jerudong Specialist Centre, [3]Nursing and Midwifery, PAPRSB Institute of Health Sciences, Universiti Brunei Darussalam, and [4]Nusing and Midwifery, PAPRSB Institute of Health Sciences, Universiti Brunei Darussalam, Brunei Darussalam

Background:

Stroke is one of the leading cause of mortality and disability around the world (Mellor et al., 2015). In Brunei, stroke is the fourth leading cause of death with 123 deaths in 2016 (Ministry of Health Brunei, 2017). Thrombolysis is the common treatment used in the hospital to treat the acute stroke. However, the utilization of this treatment is still low due to insufficient level of awareness of the existence treatment for the acute stroke in public (Hsia et al., 2011). Furthermore, the potential existence barriers may also contribute into the prehospital delay.

Aims:

To explore the stroke patients' experience when they had their first stroke onset and their help-seeking behavior during the stroke onset.

Design:

A qualitative design with phenomenological approach.

Method:

An individual interview with semi-structured questions was used in this study. A purposive sampling of 10 stroke in-patients from Brunei Neuroscience Stroke and Rehabilitation Centre had been selected to participate in this study.

Results:

Two main factors that causing the patients delay in presenting themselves to the hospital for treatment: inadequate knowledge of the stroke and prefer alternative treatment prior to hospital treatment, and also the relevant of external factors that were identified in this study.

Conclusion:

Presenting early to hospital for stroke management is important to reduce the complications of stroke such as death and disability. By understanding the factors that contributing to the delay in presenting early to hospital, a strategy or a proper approach can be developed particularly to the high-risk population.

Keywords: Stroke, Prehospital delay.