Journal of Neuroscience and Neurological Disorders

Volume - 9, Issue - 1

Case Report **Published Date:- 2025-06-10**

The Rarest Case of Acute Bulbar Palsy due to Internal Jugular Vein Thrombosis Secondary to Protein S Deficiency: Vernet Syndrome

Dural Venous Sinus Thrombosis (DVST) is a rare although serious clinical entity that causes approximately 0.5% of all stroke cases. Head trauma with skull base fracture, aneurysm, CNS infection, thrombophilia, and vasculitis may be identified as a possible cause of DVST. Vernet's Syndrome is characterized by a constellation of unilateral cranial nerve palsies involving the 9th, 10th, and 11th cranial nerves due to compression or narrowing of the jugular foramen. We herein present a case of 33 years old Bangladeshi worker from Malaysia who had history of severe Traumatic Brain Injury (TBI) following road traffic accident with multiple skull bone fracture and extradural hematoma 3 months back, presented with acute dysphagia, dysphonia, fever and cough for 6 days. Neurologic examination revealed deviation of uvula to the left side and features of consolidation over right upper chest. Magnetic Resonance Venography (MRV) revealed thrombosis involving right transverse sinus, sigmoid sinus extending up to right internal jugular vein. The diagnosis of vernet syndrome with aspiration pneumonia was made. Later thrombophilia screen showed protein S deficiency. He was treated with broad spectrum antibiotics and started anticoagulation with dabigatran. After 6 months of anticoagulation he recovered fully with no residual neurological deficit.

Research Article **Published Date:- 2025-05-07**

Bidirectional Aspects of Well-being of Patients and Main Caregivers after Neurosurgery

Objectives: Hospitalization following a head injury is associated with high rates of disability that have a strong correlation with depression, anxiety, and low self-esteem. Well-being is related to life satisfaction, quality of life, happiness, personal growth and flourishing, competence, self-acceptance, positive relationships, and autonomy. The well-being of patients and their primary caregivers is important when a patient is left with impaired mobility after neurosurgery. The aim of this study is to examine whether the well-being of patients and their primary caregivers will differ before and after neurosurgery, and whether well-being differs between patients with motor disability (WMD group) and those without, compared to those who are not - NMD group (non-motor disability).
Methodology: 123 patients and their main caregivers were recruited. Of these, 62 were in the before neurosurgical group, 31 Patients and 31 caregivers. 61 in the after neurosurgical group, 30 Patients and 31 caregivers, of which there are 16 from WMD group and 15 from NMD.
Main outcome measures: Two analyses of Variance (ANOVA) were conducted: for WMD and NMD separately. The results reveal a significant decrease in wellbeing for both, patient and main caregivers, but a stronger decline in well-being was observed among WMD, as indicated by a larger effect size ($?^2 = 0.74$) compared to the NMD ($?^2 = 0.38$). In addition, no significant effect between group and time of measurement was found, indicating that the decrease in wellbeing was not different among patients compared to their main caregivers.
Conclusion: The findings highlight the multifaceted impact of neurosurgery on well-being, particularly for patients who remain with motor disabilities and their primary caregivers.
The decline in well-being after neurosurgery highlights the need for improved social support and the importance of developing treatment programs that can help ease the process of coping with these phenomena and provide appropriate support for both patients and their primary caregivers.

Research Article **Published Date:- 2025-04-04**

A Comparative Study of Metoprolol and Amlodipine on Mortality, Disability and Complication in Acute Stroke

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Stress in acute stroke may increase mortality and complications, but there is a paucity of information on the efficacy of beta blockers over other anti-hypertensive. To report efficacy of metoprolol over amlodipine in reducing mortality, disability and infections in acute stroke. CT/MRI confirmed stroke patients within 3 days of onset were included whose age was 18 to 75 years. Patients with secondary intracerebral hemorrhage, organ failure, pregnancy, malignancy, and immunosuppressant or on beta-blocker/amlodipine were excluded. Stroke risk factors, Glasgow Coma Scale (GCS) score, National Institute of Health Stroke Scale (NIHSS) score and CT/MRI findings were noted. Patients with a blood pressure of > 160/90 mm of Hg were randomized using 1:1 randomization to metoprolol (25 mg on day 1, 50 mg if BP is not controlled) or amlodipine (2.5 mg on day 1, then 5 mg then 10 mg on, subsequent days if BP is not controlled). Other standard treatment was continued. The primary outcome was mortality at 1 month; secondary outcomes included were in-hospital gastrointestinal hemorrhage, pneumonia, sepsis and 3 months functional outcome based on modified Rankin Scale (mRS). Side effects were noted. 18 (14.4%) patients died; 6 (9.7%) in metoprolol and 12 (19%) in amlodipine ($p = 0.20$) group. At 3-months, 66 patients had good outcome; 45 (80.4%) in metoprolol and 21 (43.3%) in amlodipine group ($p < 0.001$). The other secondary outcomes were comparable between the two groups. Metoprolol was withdrawn in 6 patients due to bradycardia, and amlodipine in 5 due to hypotension and in 1 due to allergic reaction. Metoprolol is associated with improved functional outcomes in acute stroke compared to amlodipine.

Research Article **Published Date:- 2025-03-26**

[An Observational Study on Clinical Outcome and Predictors of Traumatic Cervical Injury at a Tertiary Care Facility]

Introduction: Cervical spinal cord injuries (CSIs) account for 2% - 3% of trauma cases and 8.2% of trauma- related fatalities, making them a significant cause of disability and mortality. Effective management and timely interventions are essential to improve neurological and functional outcomes. This study aimed to evaluate the outcomes of patients with CSIs and identify key predictors of neurological and functional improvement.
Materials and methods: This prospective observational study was conducted over 12 months at SMS Medical College, Jaipur, involving 100 patients with CSIs from C1 to C7 vertebrae. Patients presenting within one week of injury were included. Clinical evaluation was conducted using the ASIA scoring system, and functional outcomes were assessed with the Functional Independence Measure (FIM) scale. MRI findings were analyzed to classify injuries and identify critical predictors, including the presence and extent of edema and listhesis grading.
Results: Significant predictors of neurological improvement included injury type, management approach, MRI findings, extent of edema (? 2 vs. >2 segments), and listhesis grading. Operative management and incomplete injuries showed better outcomes. The median Barthel Index improved from 4.0 preoperatively to 7.0 at four months ($p < 0.001$). The mean FIM score also significantly increased from 43.25 ± 26.5 to 56.8 ± 40.75 ($p < 0.05$). ASIA Grades C and D demonstrated significant neurological recovery, with no grade deterioration observed.
Conclusion: Age, injury type, management strategy, MRI findings, extent of edema, and listhesis grading are key predictors of outcomes in CSIs. These findings emphasize the importance of early diagnosis, timely surgical intervention, and comprehensive management in improving neurological and functional recovery. Multicentric studies with larger cohorts are recommended for broader generalizability.

Research Article **Published Date:- 2025-03-20**

[Pyridostigmine-Induced Status Epilepticus Rat Model Was Resistant to Increasing Doses of Ramipril: The Latter Triggered Epileptogenesis, Arrhythmia, and Cardiac Ischemia in a Dose-Dependent Manner]

Background: Studies explored the therapeutic role of agents inhibiting RAS in epilepsy. Fewer studies addressed the electrophysiological changes associated with angiotensin converting enzyme inhibitors (ACEIs) in terms of sustained seizures (status epilepticus). Sodium valproate (SVPA), a broad-spectrum anticonvulsant, has been associated with adverse cardiac events upon long-term use, in contrast to the beneficial role of ACEIs in cardiovascular disorders. This work explored the potential effects of ramipril, an ACEI, compared to SVPA, on the behavior, and electrophysiology of the brain and heart in a rat model of status epilepticus. The dose dependent pattern of the presumed ramipril activities was investigated.
Methods: Adult male rats were assigned into seven groups, controls, IP pyridostigmine (36 mg/kg)-induced status epilepticus (PISE), oral SVPA (5 mg/kg), and three groups receiving oral ramipril at respective doses of 5 (R5), 10 (R10), and 20 mg/kg (R20). Rat behavior was assessed using Racine's motor convulsion scoring for 10 minutes. Blood pressure was recorded, and electroencephalography (EEG) and electrocardiography (ECG) were performed on the sedated rats 24 hours after recovery.
Results: Despite the partial behavioral improvement of motor convulsions with R5 and R10 exhibited epileptogenic activity, as indicated by the increased relative power of fast and slow gamma waves and total EEG power. R10 triggered arrhythmia and cardiac ischemia as indicated by absence of P wave, along with ST elevation and tall T wave, slowed heart rate and prolonged QRS, QTc, and RR intervals.
Conclusion: PISE was resistant to sodium valproate and ramipril. Ramipril at low and moderate doses induced epileptogenic activity and, especially at moderate dose, precipitated cardiac ischemia and arrhythmia.
Summary
The debatable role of ramipril in epilepsy was studied in a rat model of pyridostigmine-induced status epilepticus, compared to sodium valproate. Increasing ramipril doses did not resolve status epilepticus in rats. Instead, low and moderate doses exhibited epileptogenic activity, opposite to high dose ramipril and sodium valproate. Blood pressure was dose-dependently reduced with ramipril. Electrocardiography showed evidence of cardiac arrythmia and ischemia, especially with the moderate ramipril dose. The behavioral and EEG indices correlated with systolic blood pressure and ECG changes.

Review Article **Published Date:- 2025-03-10**

Regulation of Fear Behavior by Microcircuits within the Mouse Amygdala

Background: The amygdala is a core structure in the mammalian brain that processes emotion and memory. Its complex neuronal composition and intricate microcircuit mechanisms play key roles in behaviors such as fear, anxiety, and reward. The diversity of neuronal types and the dynamics of these microcircuits provide the neural foundation for the encoding and extinction of fear memories.
Aim: This is a retrospective review article summarizing recent research on the amygdala and fear behavior in mice, which is of significant importance in helping people to comprehensively understand and recognize that the amygdala is the core regulator of fear behavior.
Methodology: An extensive and systematic search of electronic databases (Medline, PubMed, Web of Science) using keywords related to the amygdala and the technologies involved in the study such as "mouse amygdala," "basolateral amygdala (BLA)," "central amygdala (CeA)," "fear extinction," "fear learning," and "microcircuits." Articles meeting the selection criteria were included as candidate references.
Results: By integrating recent findings from optogenetics, chemogenetics, and single-cell sequencing, this review reveals the interactions between glutamatergic projection neurons and GABAergic interneurons in the amygdala, the functional division between subnuclei, and the neural basis of cross-brain area coordination. Additionally, it discusses the technical challenges in amygdala research and future directions, providing theoretical support for understanding the pathophysiology of emotional disorders.
Conclusion: The amygdala is intimately linked to emotional health, playing a critical role in understanding the mechanisms underlying the development of psychiatric disorders such as anxiety, depression, addiction, and post-traumatic stress disorder (PTSD). Despite advances in methodologies such as in vivo calcium imaging, neural circuit tracing, and electrophysiological techniques, which are progressively uncovering the underlying mechanisms of amygdalar regulation of emotional behaviors, the intrinsic microcircuitry of the amygdala remains highly complex. Significant gaps persist, necessitating further exploration and refinement to elucidate unresolved aspects of its functional architecture and behavioral modulation.
