Stroke

- Characterizing Anterior and Posterior Circulation Strokes Using High-Resolution Magnetic Resonance Imaging
- Dysphagia Screening in Acute Stroke: Adaptation and Validation of Modified Volume Viscosity Swallowing Test with International Dysphagia Diet Standardisation Initiative Standards
- Causal Role of Endothelial Dysfunction in Ischemic Stroke and Its Subtypes: A Two-Stage Analysis
- Retrospective Analysis of Quantitative EEG Indices for Predicting Functional Outcomes in Acute Ischemic Stroke
- Genetic mechanisms, brain structures, and peripheral biomarkers mediate the relation between physical frailty and neuropsychiatric disorders
- Post-Treatment Monitoring of Pulmonary Arteriovenous Malformations: Challenges and Approaches
- The Safety and Efficacy of Factor XIa Inhibitors for the Prevention of Stroke and Thromboembolism: A Systematic Review and Meta-Analysis of Randomized Controlled Trials
- Advancing research on regulatory autoantibodies targeting GPCRs: Insights from the 5th international symposium

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A 'stroke' (also called 'cerebrovascular accident' or 'CVA') is a sudden neurological event caused by the interruption of blood flow to the brain, leading to neuronal damage due to lack of oxygen and nutrients.

The term major stroke is used to distinguish a full-blown stroke from a minor stroke, or transient ischemic attack (TIA).

Cryptogenic stroke

Types

- **Ischemic stroke**: caused by blockage of a cerebral artery, typically due to thrombosis or embolism. Accounts for approximately 85% of cases.
- **Hemorrhagic stroke**: caused by rupture of a blood vessel in the brain, leading to intracerebral or subarachnoid bleeding.

Clinical Presentation

Sudden onset of:

- Motor deficit or paralysis (commonly hemiparesis)
- Aphasia or dysarthria
- Visual loss (monocular or binocular)
- Imbalance, vertigo, or ataxia

- Sudden severe headache (more common in hemorrhagic stroke)

Importance

Stroke is a 'neurological emergency'. Rapid recognition and treatment are essential to reduce brain injury and improve functional outcomes.

Journal

http://stroke.ahajournals.org/

Epidemiology

see Stroke epidemiology.

Etiology

see Stroke Etiology.

Stroke risk factors

Risk

Stroke risk.

Pathogenesis

Stroke pathogenesis.

Pathophysiology

Pathophysiology and Neuroprotective Strategies in Hypoxic-Ischemic Brain Injury and Stroke [1].

Syndromes

see Stroke syndromes.

Diagnosis

Stroke Diagnosis.

Differential diagnosis

TIA

Watershed cerebral infarction.

Complications

A common complication after stroke is development of cognitive disorder and dementia.

Stroke and traumatic intracranial hemorrhage (tICH) are major causes of disability worldwide, with stroke exerting significant negative effects on the brain, potentially elevating tICH risk. In this study, we investigated tICH risk in stroke survivors.

Using relevant data (2017-2019) from Taiwan's National Health Insurance Research Database, we conducted a population-based retrospective cohort study. Patients were categorized into stroke and nonstroke groups, and tICH risk was compared using a Cox proportional-hazards model. Among 164 628 patients with stroke, 1004 experienced tICH. Patients with stroke had a higher tICH risk than nonstroke counterparts (adjusted hazard ratio [HR], 3.49 [95% CI, 3.17-3.84]). Subgroup analysis by stroke type revealed higher tICH risk in hemorrhagic stroke survivors compared with ischemic stroke survivors (HR, 5.64 [95% CI, 4.97-6.39] versus 2.87 [95% CI, 2.58-3.18], respectively). Older patients (≥45 years) with stroke had a higher tICH risk compared with their younger counterparts (<45 years), in contrast to younger patients without stroke (HR, 7.89 [95% CI, 6.41-9.70] versus 4.44 [95% CI, 2.99-6.59], respectively). Dementia and Parkinson disease emerged as significant tICH risk factors (HR, 1.69 [95% CI, 1.44-2.00] versus 2.17 [95% CI, 1.71-2.75], respectively). In the stroke group, the highest tICH incidence density occurred 3 months after stroke, particularly in patients aged >65 years.

Stroke survivors, particularly those with hemorrhagic stroke and those aged ≥45 years, face elevated tICH risk. Interventions targeting the high-risk period are vital, with fall injuries potentially contributing to tICH incidence [2].

Outcome

see Stroke outcome.

Guidelines

Stroke guidelines.

Prevention

Effective strategies for reducing the risk of developing problems after stroke remain undefined. Potential strategies include intensive lowering of blood pressure (BP) and/or lipids.

Treatment

see Stroke treatment.

Systematic Reviews

A systematic review and data synthesis of randomized controlled trials and quasi-experimental studies was conducted. Papers were included according to the following criteria: 1) before-after design, 2) all types of stroke patients, 3) interventions that can be delivered by nurses, and 4) the primary outcome(s) were psychosocial. PubMed, Embase, PsychInfo, CINAHL, and Cochrane Library were searched (August 2019-April 2022). Articles were selected based on title, abstract, full text, and quality. Quality was assessed using Joanna Briggs Institute checklists and a standardized data extraction form developed by Joanna Briggs Institute was used to extract the data.

Results: In total 60 studies were included, of which 52 were randomized controlled trials, three non-randomized controlled trials, four quasi-experimental studies, and one randomized cross-over study. Nineteen studies had a clear psychosocial content, twenty-nine partly psychosocial content, and twelve had no psychosocial content. Thirty-nine interventions that showed positive effects on psychosocial well-being after stroke were identified. Effective intervention topics were mood, recovery, coping, emotions, consequences/problems after stroke, values and needs, risk factors and secondary prevention, self-management, and medication management. Active information and physical exercise were identified as effective methods of delivery.

Discussion: The results suggest that interventions to improve psychosocial well-being should include the intervention topics and delivery methods identified as effective. Since the effectiveness of the intervention can depend on the interaction of intervention components, these interactions should be studied. Nurses and patients should be involved in the development of such interventions to ensure it can be used by nurses and will help improve patients' psychosocial well-being.

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Case series

Stroke case series.

Research

Stroke research.

Organisations

European Stroke Organisation

World Stroke Organization

1)
Meloni BP. Pathophysiology and Neuroprotective Strategies in Hypoxic-Ischemic Brain Injury and Stroke. Brain Sci. 2017 Aug 22;7(8). pii: E110. doi: 10.3390/brainsci7080110. PubMed PMID: 28829350.
2)
Fang YT, Liao SF, Chen PL, Yeh TS, Chen CI, Piravej K, Wu CC, Chiu WT, Lam C. Risk of Traumatic Intracranial Hemorrhage After Stroke: A Nationwide Population-Based Cohort Study in Taiwan. J Am Heart Assoc. 2024 Sep 18:e035725. doi: 10.1161/JAHA.124.035725. Epub ahead of print. PMID: 39291491.
3)
van Nimwegen D, Hjelle EG, Bragstad LK, Kirkevold M, Sveen U, Hafsteinsdóttir T, Schoonhoven L, Visser-Meily J, de Man-van Ginkel JM. Interventions for improving psychosocial well-being after stroke: A systematic review. Int J Nurs Stud. 2023 Mar 28;142:104492. doi: 10.1016/j.ijnurstu.2023.104492. Epub ahead of print. PMID: 37084476.