ness meditation and aerobic exercise can lower cortisol levels, support hippocampal growth, and enhance overall cognitive function.

Psychopathological Implications

The changes in brain structure and function caused by chronic stress are closely linked to several mental health issues, including depression, anxiety disorders, and post-traumatic stress disorder (PTSD). Chronic stress can worsen these conditions or even trigger their onset by affecting brain areas involved in mood regulation and stress response, such as the hippocampus, amygdala, and prefrontal cortex. As a result, individuals may experience long-term cognitive impairments, emotional instability, and a diminished ability to cope with future stressors.

Conclusions

The impact of stress on cognitive function and brain structure is profound and multifaceted. While acute stress can enhance certain cognitive abilities, chronic stress has a detrimental effect on memory, attention, decision-making, and executive function. Furthermore, prolonged exposure to stress hormones like cortisol leads to structural changes in the hippocampus, prefrontal cortex, and amygdala, areas critical for cognitive performance and emotional regulation. Understanding the biological mechanisms underlying these effects opens the door to potential therapeutic interventions aimed at mitigating the cognitive and structural consequences of chronic stress. Encouraging stress management practices and promoting neuroplasticity through lifestyle changes and interventions can help support brain health and cognitive function in the face of stress.

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RETROSPECTIVE COMPARATIVE COHORT ANALYSIS OF PRE-STROKE HEALTH FACTORS AND THEIR EFFECT ON RECOVERY IN PATIENTS WITH HEMORRHAGIC AND ISCHEMIC STROKES

Introduction

Stroke is the most common neurological disorder and the third common cause of death in many countries. The stroke is divided into two major subtypes of ischemic and hemorrhagic, Given the risk of post-stroke death and the problems it has for the individual, and the community, despite advances in acute care, recovery outcomes vary significantly, highlighting the importance of pre-stroke health status [1].

Risk factors such as hypertension, diabetes, hyperlipidemia, and atrial fibrillation not only contribute to stroke incidence but also affect brain injury response and recovery. Diabetes worsens brain damage and impairs neuroplasticity, while atrial fibrillation is linked to larger infarct volumes and higher recurrence rates, complicating recovery. Lifestyle factors like tobacco and alcohol consumption, along with physical activity, critically influence post-stroke recovery [2].

This study investigates the relationship between pre-stroke health and recovery outcomes in ischemic and hemorrhagic stroke patients by analyzing the data on pre-existing conditions and lifestyle factors to identify predictors of hospitalization duration, and long-term function.

Goal

The aim of this research is to determine which factors influence recovery more significantly in stroke patients with pre-existing disabilities like hypertension, diabetes, hyperlipidemia, etc., and lifestyle factors (smoking, drinking, exercise) that correlate with the length of hospitalization, and long-term functional outcomes.

Material and Methods of research

This descriptive-analytical study was conducted as a retainer on adult patient's medical cases to investigate factors influencing the recovery duration and outcomes post-stroke. The study population consisted of 70 stroke patients (35 hemorrhagic and 35 ischemic) admitted to the neurology department of a tertiary care hospital in the Gomel Region from 2021 to 2024. Data were collected from medical records using a standardized form. Key pre-stroke health factors included demographic characteristics (age, sex), pre-existing comorbidities (hypertension, diabetes, hyperlipidemia, atrial fibrillation), and lifestyle factors (smoking, alcohol use, physical activity).

Post-stroke recovery outcomes were assessed at discharge, 3 months, and 6 months. Outcome measures included length of hospitalization, and functional status (modified Rankin Scale, functional independence measure), results of blood tests and efficiency of physiotherapy sessions. All data were entered into a secure electronic database and analysed using Excel software and chi -two statistical testing with $p<0.05$.

The results of the research and their discussion

Table1 – Functional scores and recovery duration of patients according to the subtype of stroke and chronic illnesses

comorbidity	Number of patients		Initial FIM (mean)		FIM within 3 months (mean)		FIM within 6 months (mean)		Initial mRS (mean)		Final mRS		Early recovery (mean) in weeks		Significant recovery (mean) in weeks	
	H	I	H	I	H	I	H	I	H	I	H	I	H	I	H	I
DM	3	5	44	47	54	59	65	76	3	3	2	1	6.0	5.4	16.0	14.0
AH	12	5	43	50	52	62	63	74	4	2	3	1	7.0	5.3	17.5	13.0
AF	2	10	46	52	55	63	67	79	3	2	2	1	5.0	4.5	14.0	11.0
HLD	3	8	50	55	58	64	69	80	3	2	2	1	6.2	5.6	16.0	13.5
Multiple	9	13	39	38	48	46	57	56	4	5	3	2	8.0	6.5	22.0	18.0
Total	70		*H stands for hemorrhagic stroke and I stands for ischemic stroke. *FIM-Functional Independence Measure *mRS- modified Rankin Scale													

The average age of patients with ischemic stroke was 61.8+15.56 years old, which was higher than patients with hemorrhagic stroke (53.9±13.69).

Among all the population of the study 41.4% are females and 58.6% male patients.

Patients aged 50–60 had recovery durations up to 16 weeks.

Patients aged 60–70 had longer recovery times ranging from 18.3 weeks and more. Patients above 70 years are most likely to have multiple chronic illnesses, which lead to complicated recovery. This age group typically exhibits the poorest recovery outcomes.73% of the patients of this category had hypertension prior to the strokes and 54% had a history of hyperlipidemia.

Based on this study, female patients tend to have longer recovery durations, especially the older ones. However, the occurrence of the strokes was found more in the male gender as most of the patients in this study were of male gender.

While age significantly influences the recovery duration after stroke, younger cohorts (40–50 years) exhibit faster recovery rates. However, targeted rehabilitation efforts and effective management of chronic conditions can play a significant role in improving outcomes, especially for older patients.

Patients with Hypertension with a total number of 17, hold the highest share of ischemic (17.14%) and hemorrhagic strokes (7.4%). Atrial fibrillation category with 12 patients, makes up 14.29% of ischemic strokes and 2.86% of hemorrhagic strokes.

Patients with hyperlipidemia make up 11.43% of ischemic stroke patients and 4.29% of hemorrhagic.

Patients with diabetes recover faster from ischemic strokes than hemorrhagic strokes but show overall slower recovery compared to other patients with a single chronic illness. Diabetic patients with the lowest number of patients however, hold the same share as patients with hyperlipidemia in developing hemorrhagic strokes with 4.29%

Similar to diabetes, patients with arterial hypertension recover faster from ischemic strokes than hemorrhagic strokes. They tend to have a slightly slower recovery than other chronic illnesses in terms of early recovery time and late recovery period.

Category of patients with atrial fibrillation indicates the fastest recovery with minimal early recovery time for both stroke types, particularly benefiting from ischemic strokes. These patients recovered by 37.5% shorter period than patients with multiple disorders.

Conversely, Multiple Disorders patients had the longest recovery period overall, which indicates a significant impact of having multiple underlying health issues on stroke recovery timelines. These patients rank the highest among the population of stroke patients with 18.57% of ischemic stroke and 12.86% of hemorrhagic strokes.

Individuals with hyperlipidemia experience a normal speed of recovery; they show significant improvements, especially in ischemic strokes, with 26.25% shorter recovery period than patients with multiple comorbidities.

Upon detailed analysis of this subset of patients, 35.7% of patients were smokers, 1/3 of them with a hemorrhagic stroke and 2/3 with Ischemic stroke. More than half of patients avoided using alcohol due to underlying diseases, but the highest percentage of alcohol consumers was related to patients with Ischemic stroke. Smoking and alcohol consumption, contribute to poorer recovery outcomes, with smokers facing an estimated 25-30% longer recovery periods compared to non-smokers. On the other side, moderate alcohol consumers fare better, suggesting potential protective effects on recovery when combined with a balanced lifestyle.

Physical activity levels show that 42.9% of patients are active, positively impacting their recovery prospects in long term and not at the initial stages. where sedentary patients experience significantly longer recovery durations – averaging 33.5% more time to reach the same condition of recovery compared to their physically active counterparts. In acute ischemic stroke patients, active exercise improves independence and walking ability. The positive effects of training are also shown shortly after. In hemorrhagic strokes, exercise also reduces systolic blood pressure, and parasympathetic adjustment of blood pressure in long run of recovery period.

Conclusions

Stroke is the third common cause of death after cancer and cardiovascular diseases and is the most common neurological disorder. Death and complications in hemorrhagic stroke are higher than ischemic stroke. The risk develops with age and occurs more common in men than women. The results of this study indicate, the most important risk factor in stroke is hypertension, which not only increases the incidence of this condition but also makes the recovery period longer. In the next places, diabetes and hyperlipidemia are the factors prolonging the recovery period. The effect of alcohol in this study did not show a significant trend, while not smoking and having physical activity made the initial recovery significantly shorter. Due to the impact of hypertension in a longer and harder recovery after strokes, it is recommended that more precise attention be given to hypertensive screening, especially in risk groups such as the elderly, and overall, a holistic approach to stroke care, which includes comprehensive medical management and rehabilitation support tailored to the individual's needs, is crucial for optimizing recovery in patients of all categories.

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LEUKOENCEPHALOPATHY OF UNSPECIFIED GENESIS WITH MODERATE VESTIBULO-ATAXIC SYNDROME, DECOMPENSATION, PROBABLE CADASIL SYNDROME

Introduction

Leukoencephalopathy is a broad term encompassing disorders that affect the white matter of the brain. A subset of these conditions remains of unspecified origin, complicating diagnosis and treatment. Moderate vestibulo-ataxic syndrome with decompensation is a common manifestation in such cases, leading to progressive neurological impairment. The hereditary nature of CADASIL (Cerebral Autosomal Dominant Arteriopathy with Subcortical Infarcts and Leukoencephalopathy) makes it a prime suspect in unexplained cases of leukoencephalopathy. This study explores the possible connection between unspecified leukoencephalopathy and CADASIL, analyzing clinical presentations and diagnostic approaches [1].

Goal

To investigate the clinical features and diagnostic challenges of leukoencephalopathy of unspecified genesis, particularly in patients presenting with moderate vestibulo-ataxic syndrome, decompensation, and suspected CADASIL.

Material and methods of research

A retrospective analysis of ten patients (aged 45-60) presenting with progressive white matter degeneration, vestibulo-ataxic syndrome, and cognitive decline was conducted. All