CLINICAL PROFILE OF STROKE IN YOUNG WOMEN

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Abstract

This observational study aimed to delineate the clinical profile of stroke in young women, utilizing a sample size of 61 patients admitted to a tertiary care center. The age distribution indicated that 37.70% of strokes occurred in women aged 40-45 years. The clinical presentation varied, with 91.81% experiencing neurodeficit, 34.42% altered sensorium, and 29.50% headaches. Significant risk factors identified included hypertension (37.70%) and diabetes mellitus (18%). The primary etiology was arterial thrombosis (49.18%), highlighting distinct pathophysiological underpinnings in this population. The study observed a high survival rate (90.16%), yet the presence of a 9.8% mortality rate underscores the critical nature of stroke in young women.

The findings advocate for an increased focus on risk factor management and the importance of recognizing diverse clinical presentations to improve stroke outcomes in young women. The study's insights into the etiological factors emphasize the need for specific preventative and therapeutic strategies tailored to this demographic.

Keywords: Stroke, Young Women, Clinical Profile, Risk Factors, Etiology, Outcomes

Introduction

Stroke represents a significant health challenge globally, marking itself as the second leading cause of death and a major cause of disability worldwide [1]. While the burden of stroke is universally recognized across various populations, its incidence, clinical manifestations, risk factors, and outcomes in young women constitute a distinct profile that warrants comprehensive exploration [2]. Traditionally, stroke was considered a condition predominantly affecting older adults, but recent data indicate a rising trend in younger populations, including women aged 18 to 50 years [3]. This shift underscores

the importance of understanding the unique etiological factors, clinical presentations, and prognostic implications of stroke in this demographic.

The etiology of stroke in young women is multifaceted, encompassing traditional risk factors shared with the older population, such as hypertension, diabetes mellitus, and smoking, alongside conditions more prevalent or exclusive to younger women, including pregnancy-related complications, oral contraceptive use, and autoimmune diseases [4]. Moreover, the influence of genetic predispositions, lifestyle factors, and psychosocial stressors in the pathophysiology of stroke in young women is increasingly recognized, suggesting a complex interplay of risk factors [5].

Clinical manifestations of stroke in young women can vary significantly from those typically observed in older adults or their male counterparts. Young women are more likely to experience atypical symptoms, which may lead to delays in diagnosis and treatment, adversely affecting outcomes [6]. Furthermore, the subtype distribution of stroke in young women, including a higher proportion of cerebral venous thrombosis and a different pattern of arterial ischemic stroke, highlights the need for tailored diagnostic and therapeutic strategies [7].

The prognosis of stroke in young women also presents unique considerations. While the overall mortality is lower compared to older patients, the long-term impact on quality of life, including physical, cognitive, and psychosocial outcomes, can be profound. Young women may face challenges related to family planning, pregnancy, childcare, career progression, and socio-economic stability post-stroke [8]. Rehabilitation and secondary prevention strategies must therefore be customized to address these specific needs and challenges.

In light of these distinctive aspects, the current study aims to synthesize available evidence on the clinical profile of stroke in young women, encompassing epidemiology, risk factors, clinical presentation, diagnostic considerations, and outcomes. By doing so, it seeks to illuminate the path forward for research, practice, and policy, ensuring that the unique needs of this population are met with evidence-based, patient-centered care.

Aims and Objectives

The primary aim of the study was to thoroughly examine the clinical profile of stroke in young women. This entailed an in-depth investigation into each patient's condition to ascertain the cause of the stroke in every case presented. Furthermore, the study sought to evaluate the outcomes of strokes in this specific demographic, thereby contributing valuable insights into the prognosis and potential for recovery in young female stroke victims.

The design of this study was observational in nature, focusing on young women diagnosed with stroke and admitted to a Tertiary Care Centre's department of medicine from August 2016 to August 2018. These patients met the specified inclusion and exclusion criteria set forth for this research. The study's sample size was determined to be 60, based on the number of eligible patients within the stipulated time frame who met these criteria.

In terms of case selection, the inclusion criteria were specifically defined. Only patients aged between 15 to 45 years, exhibiting abrupt onset of focal or global neurological deficit attributable to a vascular cause and persisting for more than 24 hours, were considered. This also included all peripartum cases of stroke. Conversely, any individual with a history of head injury was excluded from the study, ensuring a focus on vascular-induced strokes only.

The methodology for data collection was comprehensive. Each patient who met the inclusion and exclusion criteria was included in the study. A detailed proforma was prepared, encompassing extensive history-taking, clinical examination, and requisite investigations available within the hospital's facilities. The history focused on symptoms related to stroke, with particular attention to risk factors associated with young stroke victims. A thorough clinical examination was conducted, identifying neurological deficits. Relevant investigations were undertaken for all patients, including assessments of hemoglobin, total white cell count, erythrocyte sedimentation rate, routine urine analysis, blood glucose, blood urea, serum creatinine, serum lipid profile, along with diagnostic imaging such as chest X-rays and CT scans of the head. Additionally, electrocardiography was performed. For patients where necessary, further tests like bleeding time, clotting time, HIV testing, echocardiogram, and lumbar puncture for cerebrospinal fluid analysis were conducted.

This study was carried out with strict adherence to ethical considerations. Ethical approval was secured prior to the commencement of the study, ensuring that all research protocols met the required ethical standards. Informed consent was obtained from each patient or their attendants before their inclusion in the study, permitting the necessary investigations and procedures to be performed.

The results of this meticulous data collection and analysis process were aimed at shedding light on the etiology, risk factors, and the clinical and radiological profiles of stroke in young women, thereby enriching the body of knowledge on this significant health issue.

Results

The study aimed to elucidate the clinical profile of stroke in young women, focusing on patients admitted to a tertiary care center over a two-year period. The results encompass demographic details, clinical presentations, etiologies, and outcomes among the studied cohort.

The age distribution of the study population revealed a significant portion of the patients were in the older age bracket of the study's range, with 23 patients (37.70%) aged between 40-45 years. The youngest age group, 15-20 years, accounted for the smallest proportion, with only 4 patients (6.5%). This suggests that while stroke can occur in young women, the likelihood increases with age within the studied age range.

Consciousness levels at the time of presentation varied, with the majority of patients, 39 (63.93%), presenting in a normal state of consciousness. However, a notable fraction displayed altered levels, including 12 patients (19.67%) who were drowsy, 9 (14.75%) stuporous, and 1 (1.6%) in a coma, indicating the severity of neurological impact at the onset.

Clinical presentations were diverse, with neurodeficit being the most common, affecting 56 patients (91.81%). Altered sensorium and headache were also relatively common

symptoms, reported in 21 (34.42%) and 18 (29.50%) of cases, respectively. Convulsions and vomiting were less frequent, observed in 16 (26.22%) and 9 (14.75%) patients.

Hypertension was present in 23 patients (37.70%), highlighting it as a significant risk factor in this cohort. Conversely, diabetes mellitus was less prevalent, with 11 patients (18%) having this condition, suggesting varied risk profiles for stroke in young women.

Etiological analysis revealed arterial thrombosis as the most common cause, affecting 30 patients (49.18%), followed by venous thrombosis in 15 patients (24.59%). Cardioembolic sources and intracranial hemorrhage were responsible for strokes in 9 (14.75%) and 7 (11.47%) patients, respectively.

Arterial territory involvement showed the middle cerebral artery (MCA) was the most commonly affected, with 32 patients (82%) suffering MCA strokes. The anterior cerebral artery (ACA) and posterior cerebral artery (PCA) were involved in a lesser number of cases, 2 (5.2%) and 5 (13.15%), respectively.

Cerebral venous sinus thrombosis (CVST) had a notable distribution, with 60% (9 patients) occurring in the puerperal period and 40% (6 patients) in the non-puerperal period, indicating a significant association with pregnancy and the postpartum state.

Hemorrhagic stroke etiologies included hypertension and aneurysms, each accounting for 28.57% (2 patients) of hemorrhagic cases. Other causes such as SLE, Moyamoya disease, and undetermined sources were identified, reflecting the diverse etiology of strokes in young women.

The peripartum period was a critical time, with 24.59% (15 patients) of the strokes occurring during this phase, underscoring the heightened risk associated with pregnancy and the postpartum period.

Outcomes of the study population were generally positive, with a survival rate of 90.16% (55 patients). Mortality was recorded at 9.8% (6 patients), highlighting the potential severity and lethal risk of stroke even in younger populations.

Rare causes of stroke identified included ANA positivity, SLE, APLA, decreased proteins S and C, hyperhomocysteinemia, ITP, Moyamoya disease, TB, and RVD. These findings emphasize the complex and multifactorial nature of stroke etiologies in young women.

The study presents a comprehensive overview of the clinical profile of stroke in young women, highlighting the significant variation in presentation, etiology, and outcomes within this population. The results underscore the importance of considering a wide range of differential diagnoses and risk factors when evaluating young women with stroke symptoms.

Table 1: Demographic Distribution and Consciousness Level

Variable	Number of Patients	Percentage

Variable	Number of Patients	Percentage
Age Distribution		
15-20 years	4	6.5%
21-24 years	9	14.75%
25-29 years	10	16.39%
30-34 years	7	11.47%
35-39 years	8	13.11%
40-45 years	23	37.70%
Consciousness Level		
Normal	39	63.93%
Drowsy	12	19.67%
Stuporous	9	14.75%
Coma	1	1.6%

Table 2: Clinical Presentation and Hypertension

Variable	Number of Patients	Percentage
Clinical Presentation		
Neurodeficit	56	91.81%
Altered Sensorium	21	34.42%
Headache	18	29.50%
Convulsion	16	26.22%
Vomiting	9	14.75%
Hypertension		
Present	23	37.70%
Absent	38	62.29%

Table 3: Diabetes Mellitus and Etiology

Variable	Number of Patients	Percentage
Diabetes Mellitus		
Present	11	18%
Absent	50	81.96%
Etiology		
Arterial Thrombosis	30	49.18%
Venous Thrombosis	15	24.59%
Cardioembolic	9	14.75%
Intracranial Hemorrhage	7	11.47%

Table 4: Arterial Territory and CVST Etiology

Variable	Number of Patients	Percentage
Arterial Territory		
MCA	32	82%
ACA	2	5.2%
PCA	5	13.15%
CVST Etiology		
Non-Puerperal	6	40%
Puerperal	9	60%

Table 5: HemorrhagicEtiology and Peripartum Period

Variable	Number of Patients	Percentage
HemorrhagicEtiology		
Hypertension	2	28.57%
Aneurysm	2	28.57%
SLE	1	14.28%
Moyamoya Disease	1	14.28%
UD	1	14.28%
Peripartum Period		
Peripartum	15	24.59%
Non-Peripartum	46	75.41%

Table 6: Outcome and Rare Causes of Stroke

Variable	Number of Patients	Percentage
Outcome		
Survived	55	90.16%
Mortality	6	9.8%
Rare Causes of Stroke		
ANA Positive	2	-
SLE	1	-
APLA	1	-
Decrease Protein S	5	-
Decrease Protein C	3	-
Hyperhomocysteinemia	3	-
ITP	1	-
Moyamoya Disease	1	-
TB	2	-
RVD	2	-

Discussion

The clinical profile of stroke in young women, as depicted by the findings of this study, underscores the significance of age, clinical manifestations, and etiology in understanding stroke outcomes in this demographic. The largest proportion of stroke cases occurred in the 40-45 age group (37.70%), suggesting a closer association of stroke risk with advancing age within the young female population. This distribution is consistent with the broader literature, which highlights an increasing risk of stroke as women approach midlife, potentially due to the cumulative effect of risk factors and changes in hormonal status [9].

The diversity in the presentation of symptoms, with neurodeficit being the most common clinical feature (91.81%), followed by altered sensorium (34.42%) and headache (29.50%), indicates the complexity of stroke diagnosis in young women. The prevalence of neurodeficit aligns with the findings of previous studies, emphasizing the importance of rapid and accurate assessment of neurological deficits to enhance stroke management and outcomes [10]. The significant presentation of altered sensorium and headache also suggests that these symptoms should prompt consideration of stroke in differential diagnoses, even in younger populations traditionally considered at lower risk [11].

Interestingly, the study found that 37.70% of the participants were hypertensive, and 18% had diabetes mellitus. These findings are reflective of the global burden of these conditions and their contribution to stroke risk, even in younger populations. The prevalence of hypertension and diabetes mellitus underscores the need for aggressive management of these conditions from a young age to mitigate the risk of stroke [12].

The etiological breakdown revealed arterial thrombosis as the predominant cause (49.18%), followed by venous thrombosis (24.59%), which is somewhat divergent from patterns observed in older populations where cardioembolic sources predominate. This

emphasizes the unique pathophysiological mechanisms at play in younger individuals, particularly women, including the possible roles of hormonal contraception, pregnancy, and puerperium [13].

Cerebral venous sinus thrombosis (CVST) was notably more prevalent during the puerperal period (60%), highlighting the critical impact of pregnancy and the postpartum state on stroke risk in women. This association necessitates heightened vigilance and potentially tailored stroke prevention strategies in peripartum care [14].

The outcomes observed, with a survival rate of 90.16%, underscore the potential for favorable prognosis in young women with stroke, provided that prompt, appropriate treatment is administered. However, the mortality rate of 9.8% serves as a sobering reminder of the severity of stroke and the imperative for timely intervention [15].

In conclusion, the clinical profile of stroke in young women is distinguished by a combination of traditional and unique risk factors, varied clinical presentations, and a need for nuanced understanding of etiological distinctions. This study reinforces the importance of tailored approaches to stroke prevention, diagnosis, and management in young women.

Conclusion

The comprehensive analysis of the clinical profile of stroke in young women within this study illuminates several critical insights. Predominantly, it highlights that the age group most affected is 40-45 years, representing a significant 37.70% of the stroke incidence in the study population. This finding underscores the increasing risk of stroke with advancing age, even within the younger demographic. Furthermore, the data reveal that neurodeficit, altered sensorium, and headache are prevalent clinical presentations, suggesting that these symptoms should be critically evaluated in young women to expedite diagnosis and treatment.

The study also emphasizes the notable impact of hypertension (37.70%) and diabetes mellitus (18%) as prevalent risk factors, reinforcing the importance of managing these conditions early on to mitigate stroke risk. Moreover, arterial thrombosis emerges as the leading etiology, followed by venous thrombosis, pointing towards unique pathophysiological mechanisms in young women, particularly influenced by factors such as hormonal changes and pregnancy-related risks.

The survival rate of 90.16% indicates a potential for favorable outcomes when timely and appropriate interventions are applied. However, the mortality rate of 9.8% serves as a critical reminder of the severity of stroke and the importance of prevention and early treatment strategies.

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