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Prevalent Risk Factors, Awareness and Health Practices of the Post Hemorrhagic Stroke Patients

Bibinlal O[1], Manju Dhandapani[2], Latika Bajaj[3]

[1]Nursing Tutor, College of Nursing, AIIMS Mangalagiri, Andhra Pradesh-522503, India
Email: *bibinlal4777[at]aiimsmangalagiri.edu.in*

[2]Associate Professor, National Institute of Nursing Education, PGIMER, Chandigarh, 160012, India
Email: *manjuseban[at]gmail.com*

[3]Assistan Professor, College of Nursing, AIIMS, Nagpur, Maharashtra-441108, India
Email: *latikakawarti86[at]aiimsnagpur.edu.in*

Abstract: ***Background**: Most common risk factors of stroke are modifiable ones such as hypertension, smoking, overweight, physical inactivity, diabetes mellitus, alcoholism etc as per literature. **Objective**: To assess retrospectively the awareness level of patient's caregivers regarding prevalent risk factors of stroke and life style practices which may lead to the stroke incidence. **Method**: Patient caregivers (65) who were there with them during the hospital stay or attending the follow up clinic were included in the study. Structured interview schedule was used to collect data from patient's caregivers. The interview schedule included questions regarding awareness about risk factors of Hemorrhagic stroke and life style practices of the patients. **Results**: Majority of the population had an average awareness level (61.5%) and only 6.2% had good awareness regarding the risk factors of hemorrhagic stroke. It also showed that half of the subjects had family as well as self-history of hypertension (49.5% and 53.85% respectively). While assessing the life style practices of the subjects, smoking, alcoholism, physical inactivity, overweight and stress were found to be the prevalent that may lead to the occurrence of hemorrhagic stroke. **Conclusion**: Awareness and good health practices regarding the risk factors of hemorrhagic stroke are of very importance in order to reduce the incidence of stroke and it is the best way to control the increasing incidence of hemorrhagic stroke.*

Keywords: Risk factors, Prevalence, Hemorrhagic stroke, Subarachnoid hemorrhage/health practices

1. Introduction

Stroke is a major neurological, non-communicable disease, and the third most common cause of mortality and a significant cause of adult disability. In India the incidence of stroke is ~ 1.5 persons per 1000 population and ranks third for the mortality due to stroke.1 hemorrhagic strokes make up about 5-15% of all the stroke cases.[2]Globalization and industrialization has influenced the life style of the people particularly in developing countries such as India. The faulty life style has increased the prevalence of non-communicable diseases and stroke is the major non-communicable disease. It also increases the economic as well as the care burden on the individual, family and ultimately to the nation. In India and other developing countries, an alarming increase in the incidence of stroke has been observed with the rising trends of hypertension, diabetes, smoking and stress in the daily life .[5] Stroke is of two types - ischemic and hemorrhagic stroke. Ischemic stroke accounts for 50%–85% of all strokes and hemorrhagic stroke account for 1%-7% and 7%-27% (ICH and SAH respectively) of all strokes worldwide. The two types of hemorrhagic stroke are intracerebral and subarachnoid hemorrhage.

It is well established that other than genetic etiologies, stroke is a preventable disease. Accurate knowledge of the risk factors and proper health practices of stroke prevention can reduce the incidence of stroke.[3,4] Smoking, hypertension, and alcohol abuse are established risk factors for SAH.[5] The general public as well as health workers are more aware about other health problems such as cancer, hypertension, diabetes mellitus etc. but they are less aware about the risk factors leading to stroke and life style modifications that can prevent the occurrence of stroke up to certain limit. Since one stroke incidence is the risk factor of another stroke, post stroke patients are at higher risk than other individuals. The incidence of stroke is increasing among young population day by day. Prevention can be achieved through the knowledge and awareness of the risk factors. The current study was aimed at assessing prevalent risk factors of hemorrhagic stroke and awareness of the subjects regarding the risk factors.

To achieve primary prevention, knowledge of modifiable risk factors for SAH is pivotal.[6]The risk factors of a common stroke include dyslipidemia, hypertension, diabetes mellitus, smoking, and obesity.[7]

Subjects and method

A retrospective study was conducted in the various areas of Neurosurgical Department where the patients got admitted, treated which includes Emergency ward, and follow up OPD of a tertiary level Hospital in India

Data Collection

Data collection was done with structured interview schedule. Conscious spontaneous hemorrhagic stroke patients with GCS: 15, who were admitted, treated followed up in Neuro-surgical Department and willing to participate in the study were included in the study. Ethical clearance was taken from the institute. Structured interview schedule was conducted by the researchers in Hindi language; the reply and remarks of the subjects were marked by the researchers themselves. The questionnaire includes four parts socio-demographic data, biophysical profile, questions to assess the awareness of subjects regarding the prevalent risk factors, questions to assess the life style practices of the subjects and also the health

care behavior. The data was classified and analyzed using Microsoft Excel and SPSS 16.0 version. And the data were concussed in tables and graphs.

2. Results

Total 65 patients were enrolled in the study and interview schedule was conducted to collect data. Data of biophysical profile was obtained from records of the patient and also obtained by the researchers. After analyzing the data, results were supporting the literature to a large extent.

Table 1: Socio-demographic characteristics of study participants (N = 65)

Variable	Categories	n (%) / Mean ± SD (Range)
Age (years)	<40	09 (13.8)
	40–60	42 (64.6)
	>60	14 (21.5)
Gender	Male	30 (46.2)
	Female	35 (53.8)
Habitat	Rural	49 (75.4)
	Urban	16 (24.6)
Education	Illiterate	24 (36.9)
	Up to 5th	30 (46.2)
	10th–12th	08 (12.3)
	Graduate	03 (04.6)
Occupation	Self-employed	14 (21.6)
	Private job	11 (16.9)
	Government job	05 (07.7)
	Housewife	35 (53.8)
Working hours/day	Mean ± SD = 6.87 ± 2.72 (Range: 1–17 hrs)	
	<5 hrs	24 (36.9)
	6–10 hrs	37 (56.9)
	>10 hrs	04 (06.2)
Per capita income/month (Rs.)	Mean ± SD = 4770 ± 15375.4 (Range: 150–125000)	
	<1000	20 (30.8)
	1001–5000	34 (52.3)
	5001–10000	09 (13.8)
	>10001	02 (03.1)
Religion	Hindu	47 (71.2)
	Sikh	13 (19.7)
	Christian	01 (01.5)
	Muslim	04 (06.1)
Marital status	Single	01 (01.5)
	Married	62 (93.8)
	Widow	02 (04.6)
Family type	Nuclear	26 (40.0)
	Joint	39 (60.0)
Overall mean age		50.35 ± 11.27 years (Range: 23–75)

Table 1 shows that 64.6% of the subjects were between the age group of 40-60 years. Three fourth of the subjects (75.4%) were rural inhabitants and 60% of them belongs to joint family. Nearly 46% of total subjects had education up to 5th standard. About 82% of the subjects had a family income of 5000 or less. Nearly 54% of them were female and all of them were house wives. Out of 65 subjects 94 % of them were working less than 10 hours/day.

Table 2: Biophysiological profile of subjects, N= 65

Biophysiological profile of subjects	n (%)
Random blood sugar levels more than 121mg/dl	28 (43.08%)
Systolic B.P more than 140mmof Hg	48 (73.85%)
Diastolic B.P more than 90mmof Hg	58 (89.23%)
Above Normal BMI	34 (52.4%)
Abnormal waist circumference	30 (46.15%)

Table 2 shows biophysical profile, out of 65 subjects, 28 (43.08%) subjects had RBS more than 121 mg/dl whereas the 48 (73.85%) had systolic BP more than 140 mm of Hg and 58 (89.23%) had diastolic BP of more than 90 mm of Hg. Out of 65 subjects only 35 (53.84%) subjects had normal waist circumference whereas30 (46.15%) subjects had abnormal waist circumference among both male and female subjects. BMI was above normal in 34 (52.4%) subjects. Out of 34 subjects who had high BMI, 24 (36.9%) were overweight (BMI=25-29.9 Kg/m^2) and 10 (15.4%) were obese (BMI=30-39.9Kg/m^2).

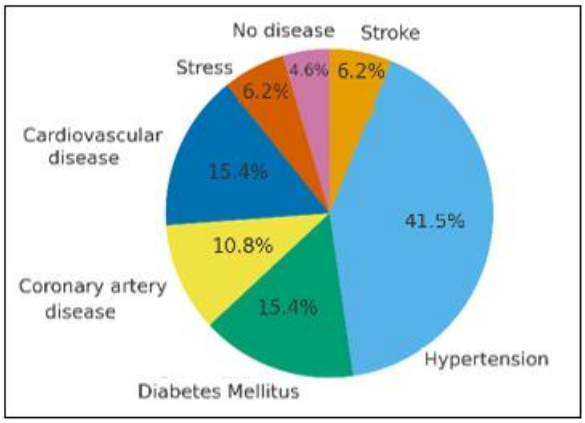

Figure 1: Family history of disease, N= 65

Table 3: Distribution of subjects according to risk factors, lifestyle, and health practices (n = 65)

Domain	Variables	Categories	n (%)
Disease-related Risk Factors	Stroke (n=11) – Duration	<1 yr	5 (45.5)
		1–5 yrs	5 (45.5)
		>5 yrs	1 (9.1)
	Stroke – Treatment	Medical	9 (81.8)
		Surgical	2 (18.2)
Hypertension	Hypertension (n=35) – Duration	<1 yr	1 (2.8)
		1–5 yrs	14 (40.0)
		>5 yrs	20 (57.2)
	Hypertension – Treatment	Medical	32 (91.4)
Substance Abuse	Smoking (Active)	Total	19 (29.1)
	Smoking type	Beedi	12 (63.2)
		Cigarette	3 (15.8)
		Both	4 (21.0)
	Alcohol consumption	Yes	18 (27.7)
		No	47 (72.3)
Activity Pattern	Exercise	Yes	20 (30.8)
		No	45 (69.2)
	Leisure time	Active	27 (41.5)
		Passive	38 (58.5)
Health Practices	Weight check-up	Yes	20 (30.8)
		No	45 (69.2)
	Blood test	Yes	12 (18.5)
		No	53 (81.5)
Dietary Practices	Non-veg intake	Yes	27 (41.5)
		No	38 (58.5)
Relaxation Techniques	Knowledge	Yes	25 (38.5)
		No	40 (61.5)

	Type	Yoga	12 (18.5)
		Deep breathing	4 (6.2)
		Music	4 (6.2)
		Praying	2 (3.1)
		Sleeping	1 (1.5)
		Walking	1 (1.5)
		All	1 (1.5)

Table No 3 describes, among 65 post-hemorrhagic stroke patients, hypertension was the predominant risk factor (53.8%), followed by stroke history (16.9%) and TIAs (10.8%). Despite high treatment rates, most hypertensive patients showed poor drug compliance (71.4%) and irregular follow-up (88.5%). Regarding lifestyle, 29.1% were active smokers (mainly beedi users), 27.7% consumed alcohol, and 69.2% were physically inactive. Health practices were inadequate, with only 30.8% checking weight and 18.5% undergoing blood tests. Dietary assessment revealed 41.5% consumed non-vegetarian food, usually infrequently. Awareness of relaxation techniques was limited (38.5%), with yoga (18.5%) being the most common. Overall, the major modifiable risk factors identified were hypertension, substance abuse, physical inactivity, poor compliance, and inadequate health monitoring.

Discussion

This study was conducted among post-haemorrhagic stroke patients at a tertiary-level hospital in India to assess awareness regarding the risk factors and practices contributing to stroke incidence. Since most risk factors are modifiable, public awareness and timely interventions are crucial in reducing disease burden.

Non-modifiable risk factors for haemorrhagic stroke include age, sex, genetic predisposition, and family history. Patients with a positive family history of vascular risk factors carry nearly double the risk of developing haemorrhagic stroke along with the modifiable factors.[8] Furthermore, first-degree relatives of patients with haemorrhagic stroke have an increased risk of subarachnoid haemorrhage.[9] In the present study, the majority of subjects (95.38%) reported a family history of at least one risk factor, with hypertension being the most common (49.5%). The risk of haemorrhagic stroke also increased with age; 86.15% of cases occurred in the 40–75-year age group, consistent with earlier studies.[10],[11]

Modifiable risk factors such as hypertension, smoking, physical inactivity, overweight, stress, and alcohol consumption were highly prevalent in this study, in line with existing literature.[8],[10],[12] Excessive alcohol consumption and smoking are well-documented contributors to subarachnoid haemorrhage, while hypertension, modest alcohol use, and familial predisposition act as secondary contributors.[9],[11] In the present study, 29.1% were active smokers and 23.1% passive smokers. Cigarette smoking is a significant risk factor associated with haemorrhagic stroke.[11,13]

Physical activity was low; only 30.8% of participants engaged in any form of exercise, and just 4.6% did so for more than 90 minutes per day. Previous studies confirm that even less than 90 minutes of activity per week may reduce the risk of haemorrhagic stroke.[14] Health practices were also inadequate: among 53.8% known hypertensives, only 20% had good drug compliance, and 30.8% monitored their weight regularly.

Overall, this study revealed that haemorrhagic stroke occurrence is influenced by both non-modifiable factors (age, family history) and modifiable factors (hypertension, smoking, alcohol use, physical inactivity, overweight, and poor treatment compliance). Many of these modifiable risk factors were neglected by patients, likely due to limited awareness regarding their impact on health and stroke prevention.

The study is limited by its small sample size and single-centre setting; therefore, larger multi-centre studies are recommended to improve generalizability.

Conclusion

Stroke remains a leading cause of disability. Early recognition and management of risk factors are essential to improve outcomes. This study highlights significant gaps in awareness and adherence to healthy practices among haemorrhagic stroke patients. Targeted awareness campaigns, community education, and lifestyle modification programs—beginning at the school and college level—are necessary to reduce the future burden of stroke and to promote early identification and control of risk factors.

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Author Profile

Mr. Bibinlal O, Nursing Tutor, College of Nursing, AIIMS Mangalagiri, Andhra Pradesh. He did M.Sc Neuroscience Nursing (AIIMS DELHI). He has 11 years of experience.
Email: bibinlal4777[at]aiimsmangalagiri.edu.in, bibinlalo[at]gmail.com. ORCID ID 0009-0004-0056-2764

Mrs. Dr. Manju Dhandapni, Associate Professor, National Institute of Nursing Education, PGIMER Chandigarh. Ph. D in Nursing. M. Sc Neuroscience Nursing (AIIMS DELHI). She has 20 years of experience. Email: manjuseban[at]gmail.com. ORCID ID: 0009-0004-0056-2764

Mrs. Dr. Latika Bajaj, Assistant Professor, College of Nursing, AIIMS Nagpur, Maharashtra. Ph. D M.Sc Neuroscience Nursing. She has 12 years of experience.
Email: latikakawarti86[at]aiimsnagpur.edu.in