



“A STUDY TO ASSESS THE RISK OF STROKE AMONG PATIENTS WITH HYPERTENSION AND TYPE 2 DIABETES MELLITUS ATTENDING OPD AT NMCH, JAMUHAR, ROHTAS.”

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ABSTRACT:-

Stroke is defined as “rapidly developing clinical sign of focal or global distribution of cerebral function, with symptoms lasting 24 hours or longer, or leading to death, with no apparent cause other than a vascular origin. Stroke is a major public health problem, both in developed and developing countries. Stroke is becoming an important cause of early death and disability in India due to increasing prevalence of the major key modifiable risk factors like type 2 diabetes mellitus and hypertension. The main aims of this study was to assess the risk of stroke among patients with hypertension and type 2 diabetes mellitus. The objectives of the study were to find out of association between risk factors of stroke with selected socio-demographic variables. The methodology used for the study was Descriptive survey method, setting of the study Narayan Medical Collage and Hospitals, Sasaram, Rohtas. Samples and size of were 100 patients with Random sampling. Data were collected by an interview technique using a modified stroke risk assessment tool by the National Stroke Association, USA. Data were analyzed and interpreted on the basis of Descriptive (frequency, percentage) and inferential (chi square) statistical methods. The findings of the study were Out of 100 samples 56% of them were in high-risk category, 40% of were in caution and 4% in low-risk category. There was a significant association found in relation to socio-demographic variables such as educational qualification, type of family, type of diet, weight, and complications of hypertension ($P < 0.05$).

Key words: *Stroke, risk assessment, hypertension and type 2 diabetes mellitus, comorbid conditions.*

INTRODUCTION

Stroke is defined as “rapidly developing clinical sign of focal or global distribution of cerebral function, with symptoms lasting 24 hours or longer, or leading to death, with no apparent cause other than a vascular origin [WHO].

Stroke is one of the leading causes of global mortality and is a major cause of serious disability for adults. Each year, almost 14 million people suffer from stroke worldwide; of these 5.5 million will die. Stroke is the second leading cause of death and the third leading cause of disability worldwide.

Stroke is the fifth leading cause of death for all Americans and a leading cause of serious long-term disability. Stroke reduces mobility in more than half of stroke survivor age 65 and older. A stroke occurs when the blood supply to part of the brain is suddenly interrupted or when a blood vessel in the brain bursts.¹

National stroke association states that, each year nearly 8 lakh people experience a new or recurrent stroke. A Stroke happens every 40 seconds. Every 4 minutes someone dies from stroke. WHO (World Health Organization) estimation suggests that by the year of 2050, 80% stroke cases in the world would occur in low- and middle-income countries mainly in India and China.

Stroke is one of the leading causes of death and disability in India. Every 3.5 minutes, someone dies of stroke. Every year, more than 795,000 people in United States have a stroke. Approximately 56 million deaths occur annually worldwide. Stroke is the second leading cause of both disability and death worldwide. In 2020, 1 in 6 deaths from cardiovascular disease was due to stroke.

Cerebrovascular accident is a global health problem and a leading cause of mortality and morbidity worldwide. Hypertension and type 2 diabetes mellitus are among the most common chronic non-communicable diseases and multifactorial disorders affecting both developed and developing countries, including India.

NEED OF THE STUDY

Stroke is a major public health problem, both in developing and developed countries. Stroke is becoming an important cause of early death and disability in India due to increasing prevalence of the major modifiable risk factor like type 2 diabetes mellitus and hypertension. Hence there is an urgent need for recognition of stroke risk factors and their warning signs. With this intention the present study aimed to assess the risk of stroke among patients with hypertension and type 2 diabetes mellitus. We also have to find out of association between risk factors of stroke with selected socio-demographic variables.

PROBLEM STATEMENT

“A Study to assess the risk of stroke among patients diagnosed with hypertension and type 2 diabetes mellitus attending OPD at NMCH, Jamuhar, Rohtas.”

OBJECTIVES: -

- To assess the risk of stroke among patients with hypertension and type 2 diabetes mellitus.
- To find out of association between risk factors of stroke with selected socio-demographic variables.

METHODOLOGY

RESEARCH APPROACH: Quantitative research approach. **RESEARCH DESIGN:**

Non experimental Descriptive research design. **RESEARCH SETTING:** Selected hospital of Jamuhar, Rohtas.

SAMPLE :- 100 Patients attending medical OPD selected hospital.

SAMPLE TECHNIQUES :- Simple Random sampling with Lottery method.

INCLUSION CRITERIA

- Who are already diagnosed with hypertension and type 2 diabetes mellitus.
- Who are willing to participate in the research study.
- Who can read, write and understand English.
- Those who are available at the time of data collection.

EXCLUSION CRITERIA

- Study subjects who are mentally unstable.
- Study subjects who are having other comorbidities.
- Age below the 30 years.

DEVELOPMENT OF THE TOOL: A Standardized modified stroke risk assessment tool regarding hypertension and type 2 diabetes mellitus patients was used to collect the data .

DESCRIPTION OF THE TOOL: The structure questionnaire comprised of 2 sections.

Section 1. Socio demographic profile of the study subjects.

Part A: Socio demographic data such as age in year, gender, Religion, Education qualification, Type of family , Place of residence , Diagnosed with hypertension , Occupation status , Marital status , Diagnosed with diabetes mellitus , Family history.

Section 2. Assessment of risk category of study subjects.

Part B: Blood pressure, ECG changes, smoking, Cholesterol, Diabetes, BMI, Exercise, Stroke family, Alcoholism, Drug abuse/oral contraceptives.

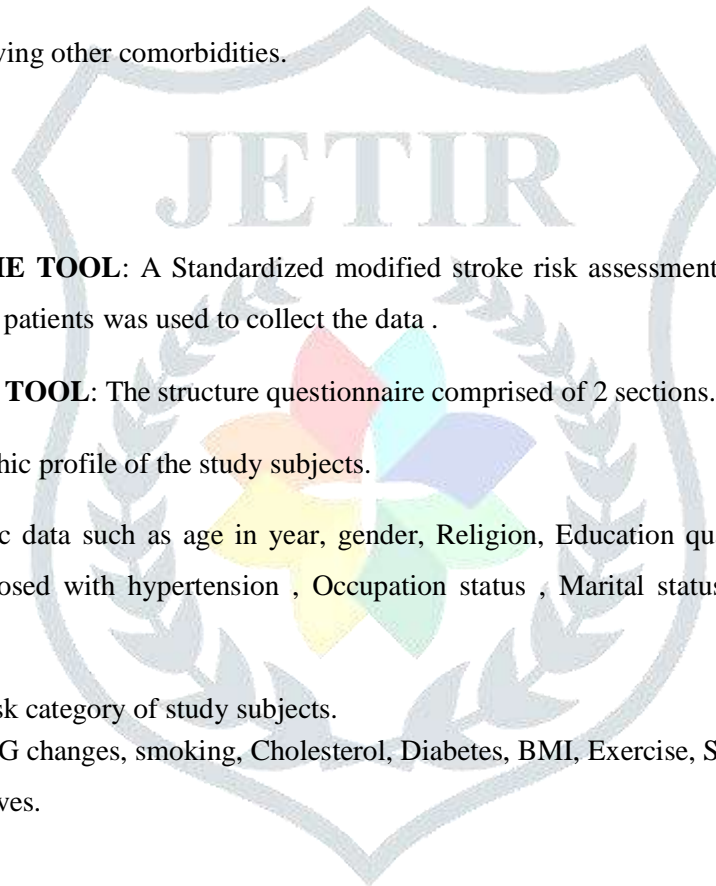


Table 1: Socio-demographic characteristic of the study subjects**N=100**

Demographic variables	Category	Frequency(no.)	Percentage (%)
Age (in years)	30-45	19	19
	46-60	46	46
	>60	35	35
Gender	Male	56	56
	Female	44	44
Religion	Hindu	87	87
	Muslim	13	13
	Christian	0	0
Educational qualification	No formal education	17	17
	Primary education	57	57
	Secondary education	19	19
	Graduate and above	7	7
Type of family	Nuclear family	65	65
	Joint family	19	19
	Extended family	16	16
Place of residence	Urban	33	33
	Rural	67	67
Are you diagnosed with HTN.	Yes	68	68
	No	32	32
Occupational status	Employed/business	37	37
	Unemployed	36	36
	Semi-skilled worker	27	27
Marital status	Single	2	2
	Married	94	94
	Widow/widower	4	4
Are you diagnosed with Diabetes mellitus.	Yes	48	48
	No	52	52
Do you have family history of the following	Diabetes mellitus	9	9
	Hypertension	16	16
	Both	14	14
	None	61	61

Table 1. Depicts the distribution of respondents by their socio demographic characteristic. Since the sampling was done by quota sampling, 19% of respondents belong (30-45) years of age ,35% of respondents belong to more than (60) years of age, and 46% of respondents belong to (46-60) years of age. Majority of 56% were male and 87 % respondents were Hindu. Regarding education 56% respondents completed their primary education and only 7% were graduate. Majority of 94% respondents were married and 65% respondents were belong to nuclear family. Majority of 67% respondents were rural and 37% were employed.

Table 2: Percentage distribution of study subjects by their risk category for stroke.

N=100

Clinical Variable	Risk category	Frequency(no.)	Percentage (%)
Blood pressure (BP)	Low risk (<140/90 mm hg)	38	38
	Caution (120-139/80-89 mm hg)	15	15
	High risk (>140/90mm hg)	47	47
ECG Change	Low risk (regular heart beat)	47	47
	Caution (I do not know)	32	32
	High risk (irregular heart beat)	21	21
Smoking	Low risk (non smoker)	76	76
	caution (trying to quit)	10	10
	High risk (smoker)	14	14
Cholesterol	Low risk (<200mg/dl)	51	51
	Caution (200-mg/dl)	40	40
	High risk (>240mg/dl)	9	9
Diabetes mellitus	Low risk (HbA1C <5.6%)	51	51
	Caution (HbA1C5.7-6.4%)	17	17
	High risk (HbA1C>6.5%)	32	32
BMI	Low risk (18.5-24.5)	30	30
	Caution (25-29.5)	51	51
	High risk (>30)	19	19
Exercise	Low risk (regular exercise)	24	24
	Caution (some exercise)	28	28
	High risk (do not exercise)	48	48
Stroke family	Low risk (no)	76	76
	Caution (not sure)	17	17
	High risk (yes)	7	7
Alcoholism	Low risk (non alcoholic)	48	48
	Caution (occasional drinker)	22	22
	High risk (regular alcoholic)	30	30
Drug abuse /Oral -	Low risk (never)	72	72

contraceptives/hormones	Caution (occasional)	28	28
	High risk (yes regular)	0	0

Table 2 Shows the distribution of study subjects by their clinical variables and level of stroke risk based on their score. Out of 100 study subjects 47% patients were in high risk category, 38% patients were in low risk and 15% patients were in caution category. Out of 100 Smoking patients 76% patients were low risk, 10% patients were caution and 14% patients were high risk category. Out of 100 Cholesterol patients 51% patients were low risk, 40% were caution and 9% patients were high risk category. Out of 100 Diabetes mellitus patients 51% were low risk, 32% were high risk and 17 % were caution category. Out of 100 Alcoholic patients 48% were low risk, 30% were high risk and 22% were in caution category.

Table 3: Percentage distribution of level of risk among the hypertensive and diabetes patients.

N=100

Diagnosis	Level of risk						Total
	High risk		Caution		Low risk		
	No.	%	No.	%	No.	%	
Type 2 diabetes mellitus only	9	9%	5	5%	16	16%	30
Hypertension only	23	23%	10	10%	21	21%	54
Type 2 and Diabetes mellitus	11	11%	1	1%	4	4%	16

Table 3 Shows that stroke risk is highly common among patients diagnosed with hypertension compared to patients diagnosed only with diabetes mellitus or both hypertension and type 2 diabetes mellitus.

Table 4: Association between stroke risk with selected socio-demographic variables

N=100

Characteristics	Category	Level of risk			Chi-square	df	Table value
		High risk	Caution	Low risk			
Age (in years)	30-45	12	7	0	1.591	4	0.81 ^{NS}
	46- 60	24	20	2			
	>60	20	13	2			
Gender	Male	34	21	1	2.264	2	0.32 ^{NS}

	Female	22	19	3			
Religion	Hindu	47	36	4	1.383	4	0.50 ^{NS}
	Muslim	9	4	0			
	Christian	0	0	0			
Educational qualification	No formal education	10	6	1	1.573	6	0.95 ^{NS}
	Primary education	30	25	2			
	Secondary education	11	7	1			
	Graduate/above	5	2	0			
Type of family	Nuclear	31	32	2	10.05	4	0.123 ^S
	Joint	14	3	2			
	Extended	10	5	1			
Place of residence	Urban	17	13	3	3.373	2	0.185 ^{NS}
	Rural	39	27	1			
Are you diagnosed with hypertension	Yes	40	26	2	1.064	2	0.588 ^{NS}
	No	16	14	2			
Occupational status	Employed/business	21	14	2	0.725	4	0.948 ^{NS}
	Unemployed	19	16	1			
	Semi-skilled worker	16	10	1			
Marital status	Single	2	0	0	1.884	4	0.757 ^{NS}
	Married	52	38	4			
	Widow/widower	2	2	0			
Are you diagnosed with diabetes mellitus.	Yes	28	18	2	0.240	2	0.887 ^{NS}
	No	28	22	2			
Do you have family history of the following	Diabetes mellitus	6	2	1	8.817	6	0.184 ^{NS}
	Hypertension	11	5	0			
	Both	7	5	2			
	None	32	28	1			

Table 4 depicts the association between the selected variables and overall stroke risk score of patients with type 2 diabetes mellitus and hypertension patients. The chi-square (χ^2) value was computed to find the association between the assessment of stroke risk score of patients with type 2 diabetes mellitus and hypertension with selected demographic variables. Among the selected socio demographic variables such as education qualification, type of family, type of diet, weight and complication of hypertension No significant association was found with stroke risk score ($P < 0.05$).

DISCUSSION

This chapter deals with the detailed discussion of findings of the study interpretation from statistical analysis. The findings are discussed in relation to objectives formulated, compared and contrasted with those of other similar studies conducted in different settings. The findings of the study have been discussed based on objectives and with the findings of other studies.

Leena Dorothy W. Pavithra C. Umadevi A K. (2021) Conducted a non-experimental, descriptive survey method. Samples were selected by using quota sampling techniques and 60 hypertension and type 2 diabetes mellitus patients who met the inclusion criteria were selected for the study. Data were collected by an interview technique using a modified stroke risk assessment tool by the National Stroke Association, USA. Out of 60 samples 48.3% of them were in high-risk category, 28.3% were in caution and 23.3% in low-risk category. There was a significant association found in relation to socio demographic variables such as education qualification, type of family, type of diet, weight and complications of hypertension ($P < 0.05$).

The present study findings are, out of 100 samples 56% of them were in high-risk category, 40% were in caution and only 4% in low-risk category. There was significant association found in relation to socio demographic variables such as Type of family.

Maniatunufus, Yushy Kurnia Herliani, Nursiswati (2022) Conducted a descriptive study with a non-probability sampling techniques involving 99 patients with hypertension, diabetes mellitus, and CHF who visited the outpatient clinic. This study shows that most respondents have moderate knowledge related to risk factor and symptoms of stroke (54.6%). Diabetes mellitus (42.4%), smoking (40.4%), and alcohol consumption (38.4%) are the most common risk factors for stroke that patients are unaware of. Furthermore, patients are largely unaware of the symptoms of stroke, which include visual disturbances in one or both eyes (65.7%), confusion (64.7%), and sudden dizziness (54.6%).

The present study findings are, out of 100 samples 56% of them were in high-risk category, 40% were in caution and only 4% in low-risk category. There was significant association found in relation to socio demographic variables such as Type of family.

Indira Kumari N, and Veera Raghavulu B (2015) Conducted a retrospective study with the objective of identifying various risk factors for stroke and assess the awareness of the risk factors for stroke. There were 73 males and 23 females were in the age group of 55-56 years. On analysis of risk factors according to the type of stroke, hypertension still remained the most common risk factor for both ischemic and hemorrhagic stroke. This study reveals hypertension as the most common risk factor for stroke followed by smoking.

The present study reveals hypertension and type 2 diabetes mellitus as the most common risk factors for stroke.

CONCLUSION

The present study was aimed at assessing the risk of stroke among patients with hypertension and type 2 diabetes mellitus attending OPD of NMCH. The relevant data was collected statistically based on objectives of the study.

Among 100 patients, 56% had high risk, 40% patients had caution and 4% patients had low risk category. Pertaining to relationship between the socio-demographic variables and risk of stroke, statistically significant association was found of the patients in the study.

Out of 100 patients, 30% patients had Only type 2 diabetes mellitus, 54% patients had only hypertension and 16% patients had both hypertension and type 2 diabetes mellitus. This study shows that these variables had influenced risk of stroke.

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