

A Study on Assessment of Risk Factors in Ischemic Stroke Patients Through Prospective Observational Study in A Tertiary Care Hospital

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ABSTRACT:

Aim & Objectives The aim of the study is to assess the risk factors in ischemic stroke patients through prospective observational study in a tertiary care hospital. The primary objective is to determine and to assess the risk factors in ischemic stroke patients. The secondary objective is to assess prevalence of stroke in patients and to categorize the different types of risk factors and to assess the severity of ischemic stroke by using standard scale.

Methodology: This is a Prospective Observational Study and the subjects involved are the patients admitted in General Medicine Department, diagnosed with ischemic stroke. The study begins with the selection of patients based on inclusion and exclusion criteria. All the data of the subjects are collected by using the specially designed case proforma and the data collection includes demographic details, past medical and medication history, history investigations, personal habits, allergies, diagnosis, laboratory investigations and drugs prescribed. Then a GLASGOW COMA SCALE and RACE SCALE was incorporated to evaluate the level of consciousness and severity.

Results: A total of 110 patients were enrolled in the study in which females were more (57%). 50-60yrs age group patients were maximum. Majorly observed risk factor is hypertension (85%). Most of the patients had experienced slurred speech (45%). As per Glass gow coma scale classification 47% of patients are categorized under severe category. As per RACE scale 52% patients are found to be more than score 5. (score = >5 large vessel occlusion and score = < 5 small vessel occlusion).

Conclusion: In conclusion, hypertension is the major risk factor that accomplish for occurrence of ischemic stroke. Hypertension and diabetes mellitus is a major comorbidities found. Clinical Pharmacist plays a major role in increasing awareness towards risk factors thereby reducing the ischemic stroke.

Key words: Ischemic stroke, Glasgow coma scale, RACE scale, Department of pharmacy practice, CESCOP.

INTRODUCTION

An ischemic stroke occurs when a blood clot blocks the blood flow in an artery within the brain. The brain needs a constant supply of oxygen and nutrients in order to work well. If blood supply is stopped even for a short time, this can cause problems. Brain cells begin to die after just a few minutes without blood or oxygen. Stroke is estimated to be the second leading cause of death and a major cause of serious disability for adults worldwide. It affects roughly 14 million people and kills around 5 million annually. Approximately 90% of stroke are ischemic infarctions, a prevalence which increased substantially between 1992 and 2017, attributed to decreased mortality and improved clinical interventions. Common cause of ischemic stroke includes large artery atherosclerosis, Arteritis / vasculitis Vasoconstriction Atrial fibrillation, Small vessel disease. Signs and Symptoms include Slurred speech (dysarthria), Hemiplegia, Mouth deviation, Loss of consciousness, Hemiparesis, Altered sensorium, Aphasia, Headache. Risk factors include both non-modifiable risk factors such as Age, Gender, Race or Ethnicity. Modifiable risk factors such as Hypertension, diabetes mellitus, alcohol, smoking, atrial fibrillation, physical inactivity and Hyperlipidemia.

RESEARCH METHODOLOGY

STUDY SETTING

The study was conducted in General Medicine Department, Vishwa Bharathi Hospital, Gayathri estate, Kurnool, Andhra Pradesh, India.

STUDY DESIGN

It is a Prospective observational study.

STUDY PERIOD

This study was conducted over a period of Six months (November 18 2021 to May 4, 2022).

STUDY POPULATION

The Sample we had collected was 110 patients.

MATERIALS

- Patient data collection proforma
- RACE SCALE
- GLAS GOW COMA SCALE

STUDY CRITERIA

Inclusion criteria:

- ❖ Patients with age 20 to 60 years of both males and females.
- ❖ Patients who are suffering with various comorbidities such as HYPERTENSION and DIABETES MELLITUS.
- ❖ Patients who are willing to participate in the study.
- ❖ Patients who are in adherence to the medication.
- ❖ Patients had an earlier history of stroke.

Exclusion criteria:

- ❖ Patients with age <20 years and pregnant women, breast feeding.
- ❖ Patients who does not willing to participate.

METHOD OF THE STUDY

The study was started with the selection of subjects based on the inclusion criteria and exclusion criteria followed by collection of all the required parameters of the patients using self-prepared structural patient data collection proforma which includes patient’s demographics, medication history, personal history, lab investigations and current treatment and also all available data from the patients. Then a GLASGOW COMA SCALE and RACE SCALE was incorporated to evaluate the level of consciousness and severity. All the data of the subjects are collected by using the data collection proforma with respect to history examination and investigation.

RESULTS

A Prospective Observational study was conducted in Viswabharathi Super Speciality hospital in Kurnool for a period of six months. A total of 110 patients includes in the study based on inclusion and exclusion criteria among 62 were female and 48 were male patients.

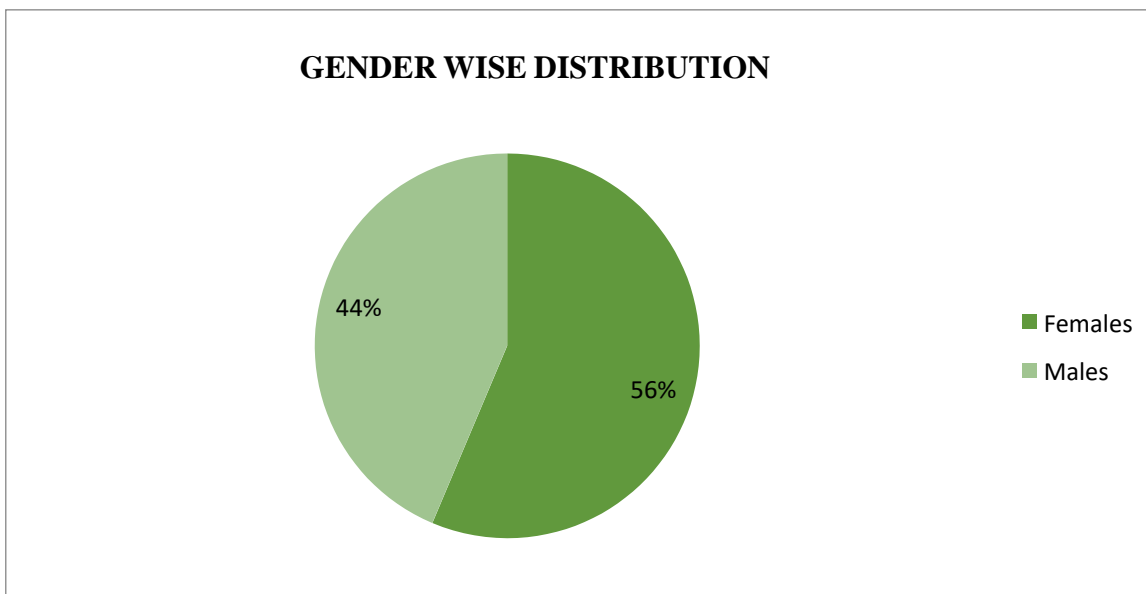
GENDER DIFFERENTIATION IN ISCHEMIC STROKE PATIENTS

In our study a total of 110 samples were included. In the study, 62 (57%) were female patients and 48 (43%) were male patients respectively, and the results were shown in the table and figures,

TABLE: GENDER DIFFERENTIATION IN ISCHEMIC STROKE PATIENTS

GENDER	NO OF PATIENT	PERCENTAGE %
Females	62	57%
Males	48	43%
Total	110	100%

FIGURE GENDER DIFFERENTIATION IN ISCHEMIC STROKE PATIENTS



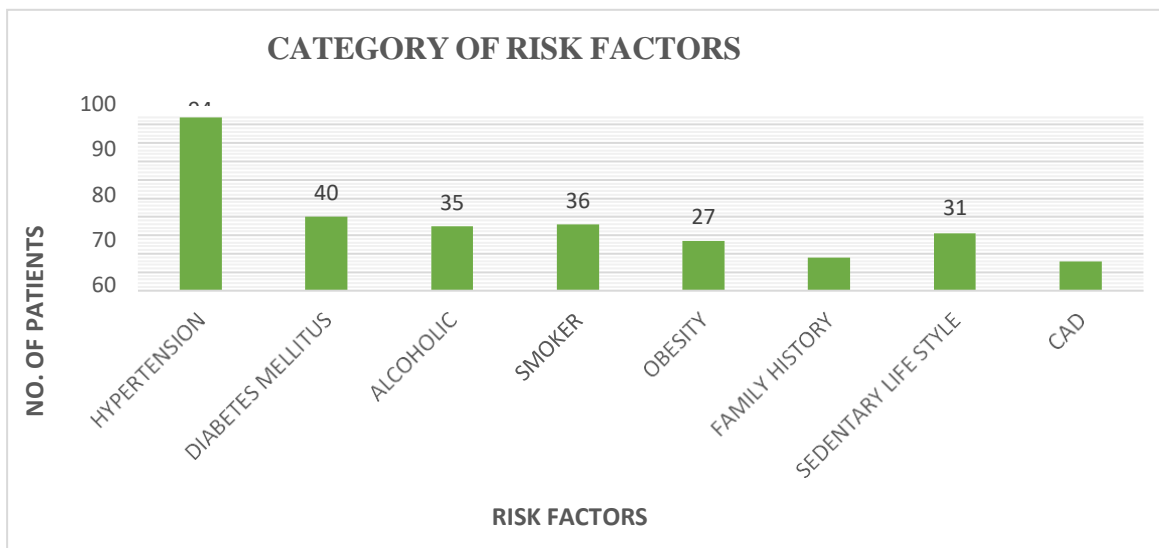
CLASSIFICATION OF PATIENTS BASED ON RISK FACTORS

Among the 110 samples, 94 patients were being with Hypertension (85.45%), 40 patients were being with Diabetes mellitus (36.36%), 35 patients were having a habit of consuming alcohol(31.81%) , 36 patients were having a habit of smoking (36.72%), 27 patients were being with obesity (24.54%), 18 patients were being with family history of stroke(16.36%), 31 patients were being with sedentary life style (28.18%),16 patients were being with Coronary artery disease (14.54%).

TABLE: CLASSIFICATION OF PATIENTS BASED ON RISK FACTORS

RISK FACTORS	NO OF PATIENTS	PERCENTAGE
HYPERTENSION	94	85.45%
DIABETES MELLITUS	40	36.36%
ALCOHOLIC	35	31.81%
SMOKER	36	36.72%
OBESITY	27	24.54%
FAMILY HISTORY	18	16.36%
SEDENTARY LIFE STYLE	31	28.18%
CAD	16	14.54%

FIGURE: CLASSIFICATION OF PATIENTS BASED ON RISK FACTORS



AGE GROUP CATERORIZATION OF STROKE PATIENT

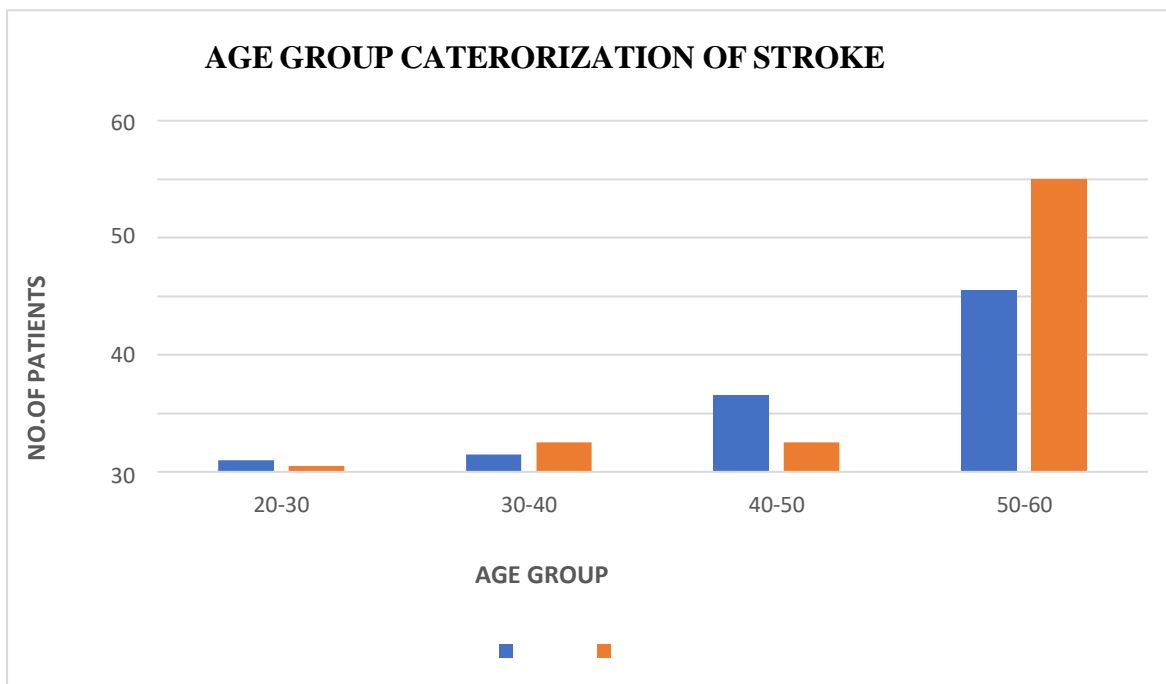
In our study, a total of 110 samples (N=110) are collected based on inclusion and exclusion criteria. Majority of the patients were in the age group of 50-60 years. The number of patients in 50-60 age group are 81(73.63%), 40-50 age group are 18 (16.36%), 30-40 age group are 8 (7.27%), 20-30 age group are 3 (2.72%) respectively.

TABLE: AGE GROUP CATERORIZATION OF STROKE PATIENT

AGE	Males	Females	Total	Percentage
20-30	2	1	3	2.72%
30-40	3	5	8	7.27%
40-50	13	5	18	16.36%
50-60	31	50	81	73.63%

Total	49	61	110	100%
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FIGURE: AGE GROUP CATERORIZATION OF STROKE PATIENT



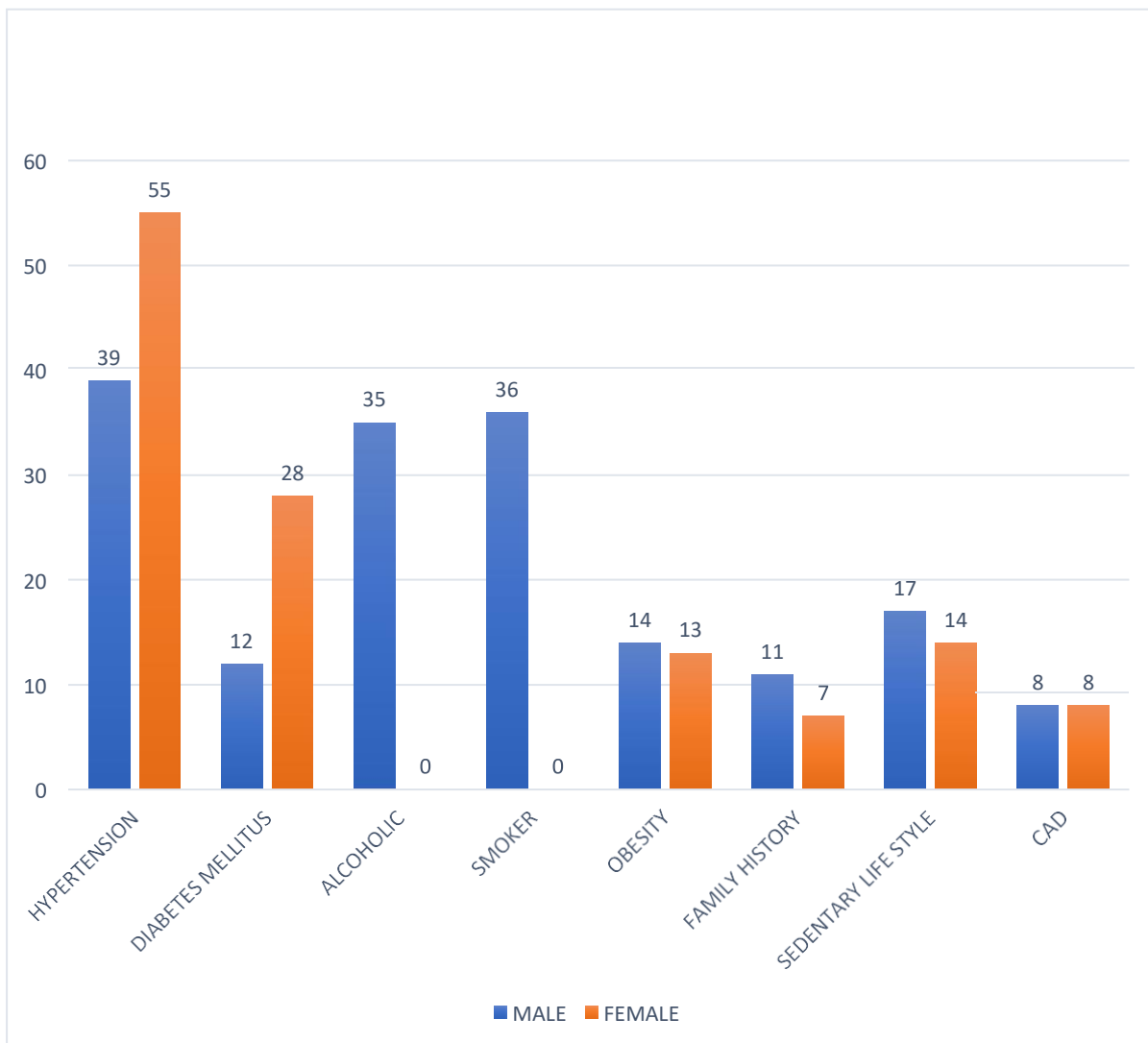
CATEGORIZATION OF RISK FACTORS BASED ON GENDERDISTRIBUTION

In our study, a total of 110 patients are diagnosed with ischemic stroke , the risk factors were being with hypertension in 94 patients i.e. 39 male and 55 female patients and the risk factor of diabetes mellitus total of 40 patients i.e. 12 male and 28 female, risk factor of alcohol total 35 patients i.e.35 males and 0 female , risk factor of smoking total 36 patients i.e. 36 males and 0 female , risk factor of obesity total 27 patients i.e. 14 males and 13 females , risk factor of family history total 18 patients i.e. 11 males and 7 females , risk factor of sedentary life style total 31 patients i.e. 17 males and 14 females , and risk factor of CAD total patients 16 i.e. 8 males and 8 females.

TABLE: CATEGORIZATION OF RISK FACTORS BASED ON GENDERDISTRIBUTION

RISK FACTORS	MALE	FEMALE
HYPERTENSION	39	55
DIABETES MELLITUS	12	28
ALCOHOLIC	35	0
SMOKER	36	0
OBESITY	14	13
FAMILY HISTORY	11	7
SEDENTARY LIFE STYLE	17	14
CAD	8	8

FIGURE: CATEGORIZATION OF RISK FACTORS BASED ON GENDER DISTRIBUTION



PATTERN OF SYMPTOMS AMONG ISCHEMIC STROKE PATIENTS

In our study, the most common symptoms experience by the ischemic stroke patients (n=110) are left hemiparesis (52%), Slurred speech (45.4%), Right hemiparesis (26.3%), deviation of mouth (24%), loss of consciousness (17.2%), Altered sensorium (14.5%), loss of speech (8.18%), Headache (7.2%), Seizures (6.3%) and loss of vision (0.9%).

TABLE: PATTERN OF SYMPTOMS AMONG ISCHEMIC STROKE PATIENTS

Symptoms	No of Patients(n)	Percentage (%)
Slurred Speech	50	45.45
Right hemiparesis	29	26.3
Left hemiparesis	58	52.7
Deviation of mouth	27	24.5
Headache	8	7.2
Altered sensorium	16	14.5
Loss of consciousness	19	17.2
Loss of speech	9	8.18
Loss of vision	1	0.9

Seizures	7	6.3
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FIGURE: PATTERN OF SYMPTOMS AMONG ISCHEMIC STROKE PATIENTS

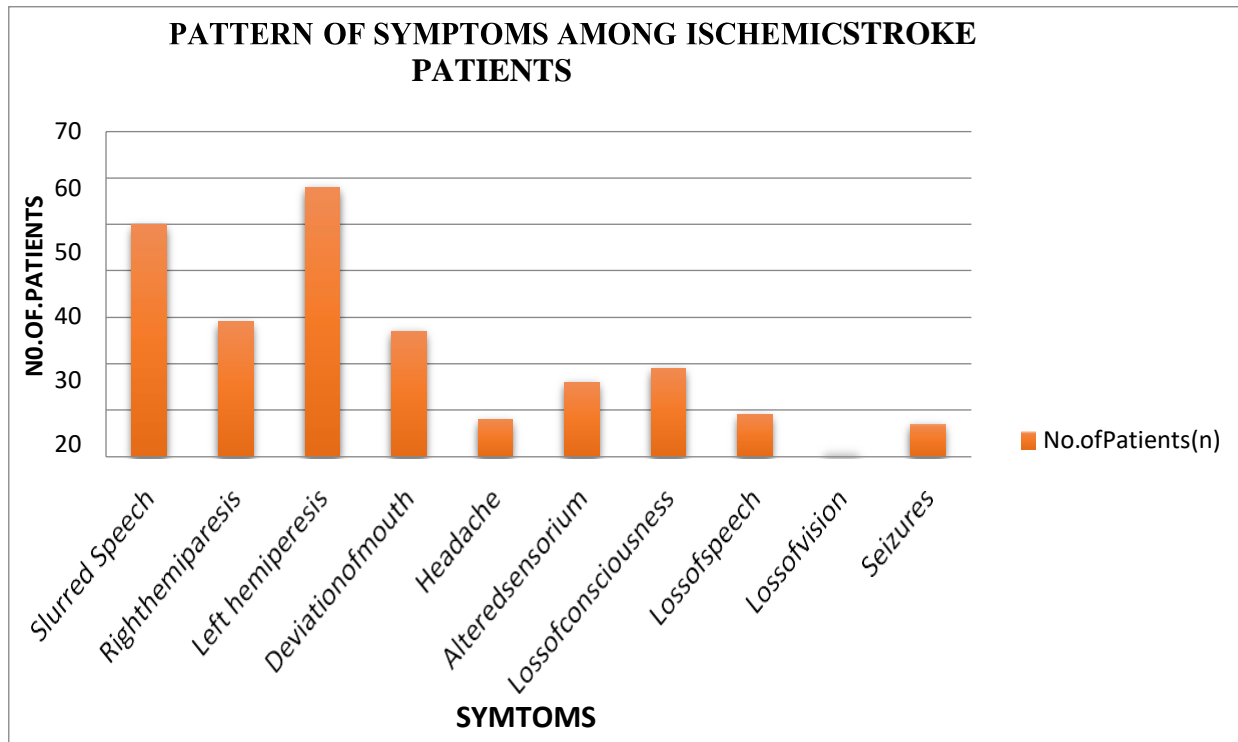


TABLE: PATIENTS WITH COMORBIDITIES:

TABLE: HYPERTENSION PATIENTS WITH OTHER COMORBIDITIES

In our study, we recruited the patients on the basis of comorbidities such as Hypertension with DM are 36 patients, Hypertension with Alcohol are 29 patients, Hypertension with Smoker, Hypertension with CAD are 13, Hypertension with Obesity are 23 respectively.

HTN	NO OF PATIENTS
DM	36
ALCOHOL	29
SMOKER	28
CAD	13
OBESITY	23

FIGURE: HYPERTENSION PATIENTS WITH OTHER RISK FACTOR

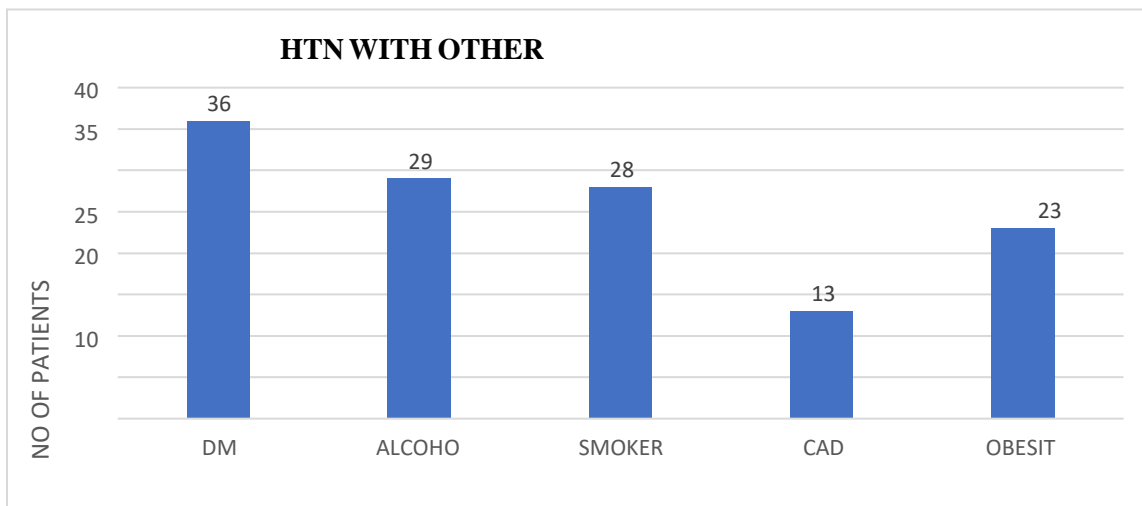


TABLE: DIABETES WITH OTHER RISK FACTORS

In our study, we recruited the patients on the basis of comorbidities such as Diabetes mellitus with Alcohol are 9 patients, Diabetes mellitus with Smoking are 9 patients, Diabetes mellitus with Obesity are 10 patients, Diabetes with Family history are 6 patients, Diabetes mellitus with CAD are 7 patients respectively..

DM	NO OF PATIENTS
ALCOHOL	9
SMOKER	9
OBESITY	10
FAMILY HISTORY	6
CAD	7

FIGURE: DIABETES WITH OTHER RISK FACTORS

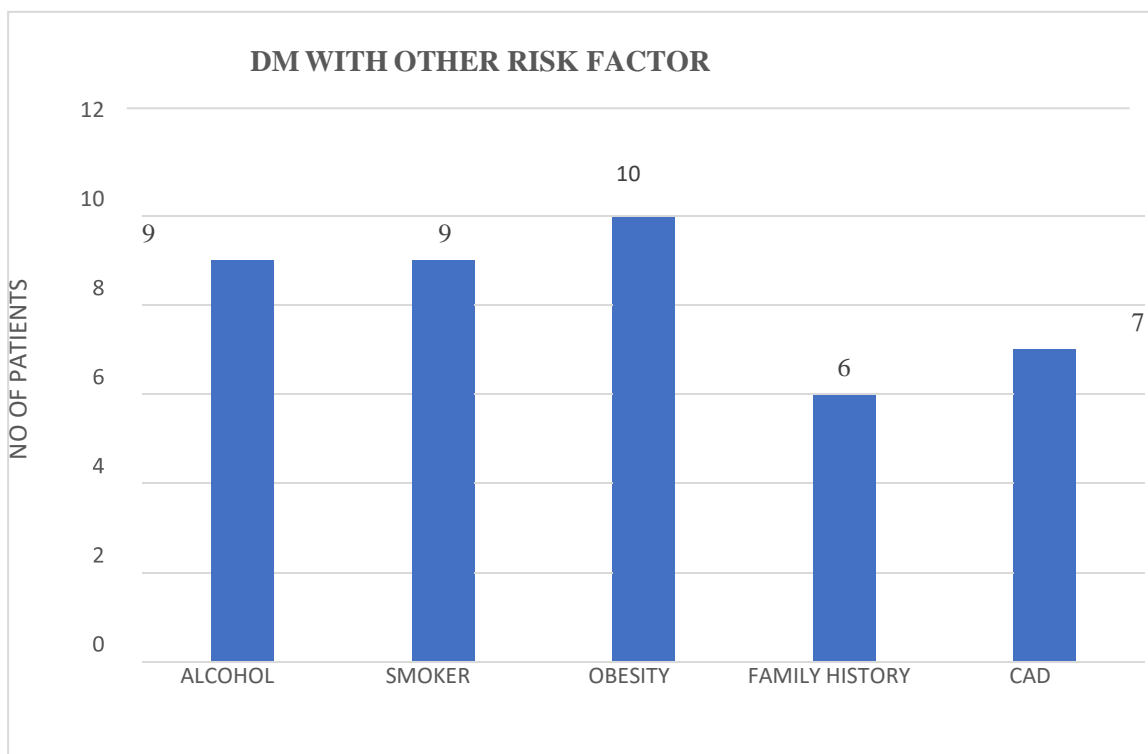
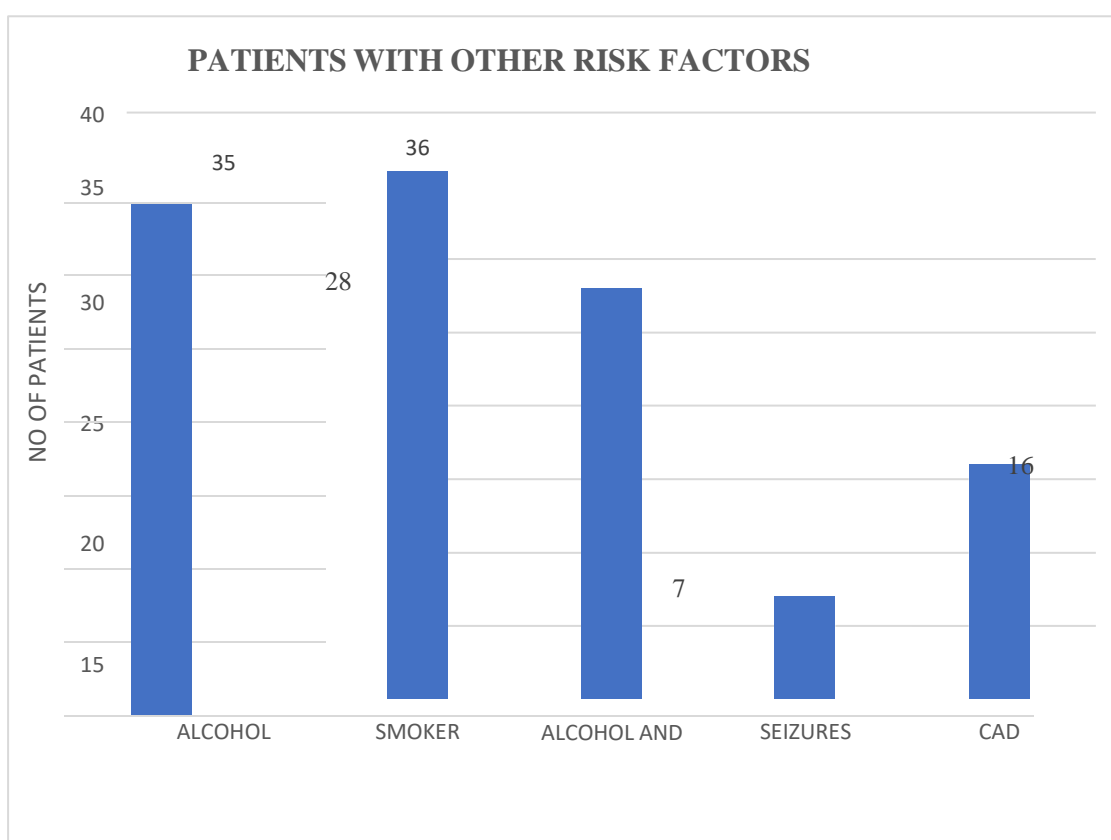


TABLE: PATIENTS WITH OTHER RISK FACTORS

In our study, the other comorbidities found in ischemic stroke such as Alcohol are 35 Patients, Smoker are 36 patients, Alcohol and Smoker are 28 Patients, Seizures are 7 patients and CAD are 16 patients respectively.

PATIENTS WITH OTHER COMORBIDITIES	NO OF PATIENTS
ALCOHOL	35
SMOKER	36
ALCOHOL AND SMOKER	28
SEIZURES	7
CAD	16

FIGURE: PATIENTS WITH OTHER RISK FACTORS



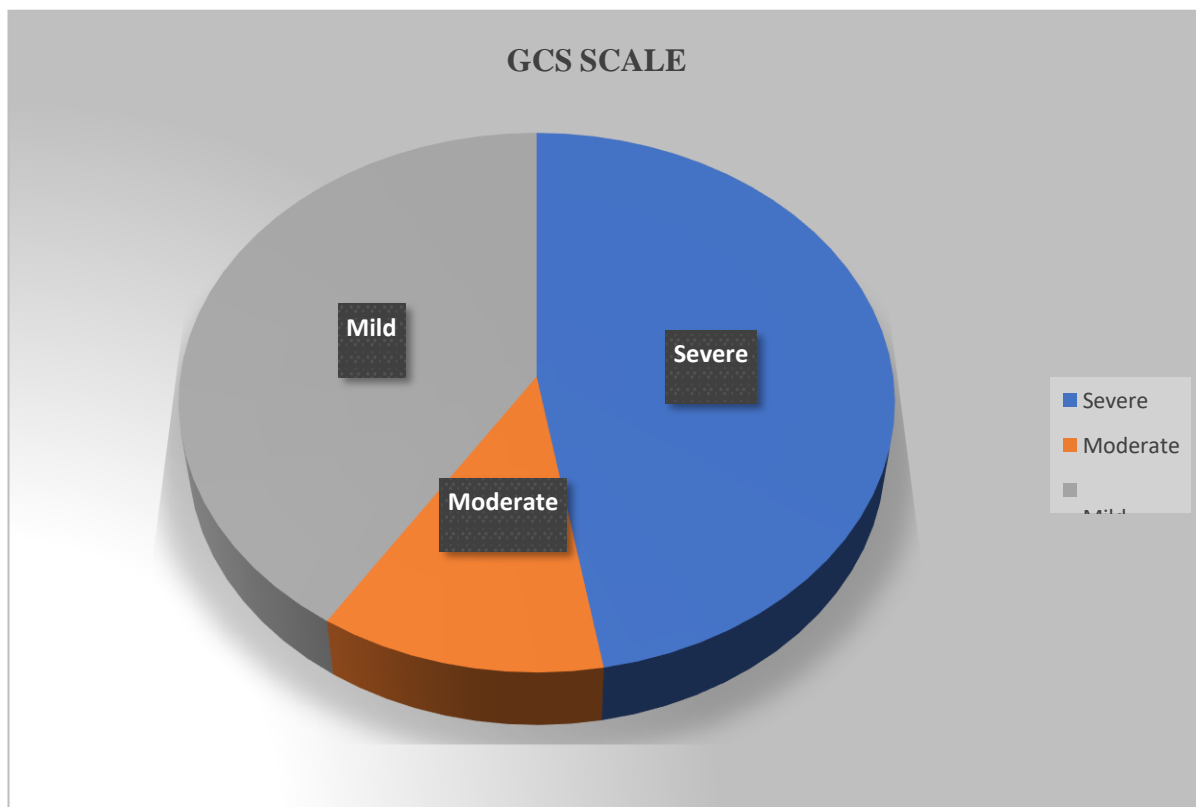
GLASSGOW COMA SCALE IN ISCHEMIC STROKE PATIENTS

In our study we use the Glasgow coma scale to describe the level of consciousness and severity in ischemic stroke patients. Out of 110 patients, 52 patients were severe (47.27%), 13 patients were moderate (11.81%), 45 patients were mild (40.90%) respectively.

TABLE: GLASSGOW COMA SCALE IN ISCHEMIC STROKE PATIENTS

SEVERITY	GCS	PERCENTAGE
Severe	52	47.27%
Moderate	13	11.81%
Mild	45	40.90%
Total	110	100%

FIGURE: GLASS GOW COMA SCALE IN ISCHEMIC STROKE PATIENT

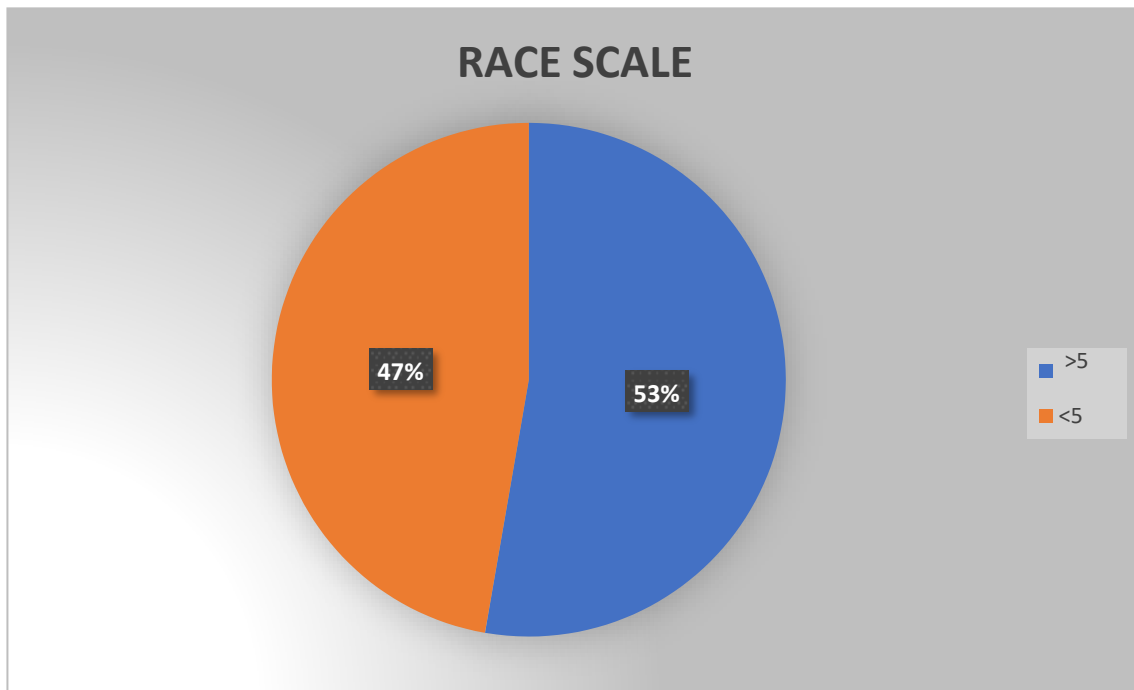


RACE SCALE AMONG ISCHEMIC STROKE PATIENT

In our study we incorporated the RACE (Rapid arterial occlusion evaluation) scale to predict the large vessel occlusion in ischemic stroke patients. Out of 110 patients, 58 patients were found to be large vessel occlusion and 52 patients were found to be small vessel occlusion respectively.

TABLE: RACE SCALE AMONG ISCHEMIC STROKE PATIENT

SEVERITY	RACE SCALE	PERCENTAGE
>5	58	52.72%
<5	52	47.27%
Total	110	100%

FIGURE: RACE SCALE AMONG ISCHEMIC STROKE PATIENTS

DISCUSSION

This study is Prospective observational study. Among 110 ischemic stroke patient's females were 62 and males were 48 indicating females were dominating which is similar to the study conducted by systemic review of sex differences in ischemic stroke among adults performed by Michelle H. Lippert et.al". that females are more in number compare to the males. The maximum in age group of 50-60 years (73.63%) patients followed by 40-50 years (16.36%) patients, which support the study conducted by Michelle H. Lippert et.al". In the present study 100% patients experienced the ischemic stroke this was supported by Mitta. N. Sreedaran etal., (90% had ischemic stroke). In Esther Bootetal., (80% experienced Ischemic stroke,) Females are more prone to ischemic stroke than males because of exogenous estrogens and post menopausal women's. Decreased blood supply to the brain is the major cause of ischemic stroke in all age groups and gender. The major risk factor in our study were Hypertension in 85.45% patients followed by diabetes in 36.36% patients, H/O Hypertension in 80% patients, H/O CVA in 14.54% patients, H/O hypertension and diabetes in 32.7%, smoking in 36.72%, H/O CAD in 14.54% patients, H/O diabetes in 31.81% patients which is supported by the study and conducted by Michelle H. Leppert et.al" and Esther Bootetal. Frequency of diabetes mellitus was 9.6% whereas frequency of hypertension was 10.1%)¹⁶, In Esther Bootetal et al., (major risk factor is hypertension in 25% patients, followed by Diabetes in 27%, Alcohol in 26%, Smoking and recurrent stroke in 12%, Hyper lipidemia in 10%, CAD in 10%). In our study Hypertension is the major risk factor for ischemic stroke i.e., 94 cases, followed by H/O Diabetes mellitus in 35 ischemic cases, H/O smoking in 36 ischemic cases. This was supported by the study conducted by Mohammad Yaseen Abbasi et al., Hypertension is the major risk factor for ischemic stroke followed by diabetes mellitus. In our study smoking and alcohol are one of the major risk factors for ischemic stroke in males patients i.e. smoking (36.72%) and alcohol (31.81%). alcohol is the major risk factor for ischemic stroke followed by smoking. In our study we incorporated the Glasgow coma scale to assess the level of consciousness and severity of the ischemic stroke patients. out of 110 patients, 52 patients were severe (47.27%) , 13 patients were moderate (11.81%) , 45 patients were mild (40.90%). In our study we incorporated the RACE (Rapid arterial occlusion evaluation scale to predict the large vessel occlusion in ischemic stroke patients. In the present study population, patients experienced the left hemiparesis as a common symptom followed by slurred speech, right hemiparesis, Deviation of mouth, loss of consciousness, altered sensorium, loss of speech, headache, seizures, which is similar to the study conducted by Sridhar Srinath Thirumala konduru et al., (common symptom is weakness of left upper and lower limb (18%) followed by slurred speech (16%) , deviation of mouth(3%), headache (3%) ,altered sensorium (2%). In the study conducted by Mohammed Yassen Abbas. The most common class of drugs prescribed were anticoagulants (44), antihypertensives (80), anticonvulsants (24), multivitamins (44) and antiplatelets (94), respectively, where in our study the most common class of drugs prescribed were antiplatelets (110) patients, antacids (110) patients, antihypertensives (104) patients, statins (110) patients, Osmotic Diuretics (110) patient, anticonvulsants (23) patients, vitamin supplements (10) patients respectively.

CONCLUSION

This prospective observational study was conducted at Vishwa Bharathi super specialty hospital department of general medicine. A total of 110 subjects are included in the study bases on inclusion and exclusion criteria. The present study provided the information about the risk factors in the ischemic stroke. The maximum number of cases were in age group of 50-60 years.

In this study we included risk factors such as hypertension, diabetes mellitus, obesity, alcohol, smoking, family history, coronary artery disease. The other risk factors we concluded in our study are obesity, previous family history previous CAD. By using a questionnaire, we had collected the data and the data collection includes demographic details, past medical and medication history, history investigation, personal habits, allergies, diagnosis, laboratory investigations and drugs prescribed. Then a GLASGOW COMA SCALE and RACE SCALE was incorporated to evaluate the level of consciousness and severity and used to predict the

large vessel occlusion in ischemic stroke patients. The study concluded that the major risk factor for males is smoking and alcohol consumption. The study concluded show major symptoms of slurred speech and left hemiparesis the level of consciousness and large vessel occlusion were severe. The study finally concluded that the hypertension and diabetes mellitus are the major comorbidities for the ischemic stroke.

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