Frequency of Cardiac Risk Factors in Ischemic Stroke

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ABSTRACT

Stroke is the most common life-threatening neurological disorder and the most important single cause of disability among the population. Several lines of evidence suggest that hypertension, dyslipidemia, Ischemic heart disease, atrial fibrillation, smoking, LVH and carotid stenosis are contributing factors to stroke disease. The prevalence of risk factors varies in different communities, this study examines the frequency of cardiac factors and their frequency that contribute to develop stroke.

INTRODUCTION

- Stroke or Cerebrovascular accident is a focal neurological deficit due to a vascular lesion in the brain.
- It remains one of the leading causes of morality and morbidity worldwide.
- Some of the established risk factors that are identified include hypertension[4] (70%), diabetes mellitus[5] (35%), smoking (2.5 times more than non smokers), hyperlipidemia (14%), family history of stroke, alcoholism, vasculitis, genetic polymorphism,[6] elevated homocysteine level in blood, vascular anomalies, antiphospholipid antibody syndrome[7] (50%), drug abuse[8] (10%), infections,[9] migraine[10] (15%).
- Since control of factors is important in preventing a recurrent stroke, my study aims to identify the recent magnitude of these factors so that effective measures may be taken to raise awareness and manage them in order to prevent stroke.

Objective

To determine the frequency of cardiac risk factors in ischemic stroke patients.

Study Design

Descriptive Case Series

Keywords

Stroke, Ischemia, disability, atrial fibrillation, Ischemic heart disease

MATERIAL AND METHOD

- **Study Settings**: Department of Medicine , Liaquat University Of Medical & Health Science's Hospital , Jamshoro Sindh.
- **Study Duration**: One year from the 10th December 2011 to 9th December 2012.
- **Sample Size**: 167 Patients (Confidence level 95%, Confidence interval 5, Population 300)
- **Sample Technique**: Non probability convenience sampling.

Sample Selection

Inclusion Criteria:

- Patient with clinical and radiographic diagnosis of ischemic stroke.
- All patients of >18 years of age and either gender

Exclusion Criteria:

- Patient with clinical and radiological diagnosis of hemorrhagic stroke and other neurological disorders like tuberculosis, meningitis, brain tumor, encephalitis and multiple sclerosis.
- Patient with co-morbidities

Data Collection Procedure:

- On admission, detailed history and thorough clinical examination including neurological assessment was carried-out.
- Special emphasis was made on risk factors especially cardiac problems, however other associated parameters were assessed including, hypertension, diabetes mellitus, smoking and hyperlipidemia.
- The clinical diagnosis of ischemic stroke was made on the basis of neurological history and signs. All patients had CT scan brain. The result of CT scan was compared with clinical diagnosis on case to case basis and precision of clinical diagnosis was ascertained.

Data Analysis Procedure

- The data was collected, the frequency of Cardiac risk factors in ischemic stroke were obtained by entering, saving and analyzing such data into SPSS version 17.
- The qualitative variables are signs and symptoms, gender, while the quantitative variables were age cardiac problems duration frequency and severity of the stroke.
- The descriptive statistics were used to calculate frequency, percentage mean and standard deviation by analyzing the results of variables.
- The Chi-square test was applied between categorical variables (Cardiac problems with frequency of strokes) at 95% confidence interval and p-value <0.005 was considered as statistically significant.

RESULTS

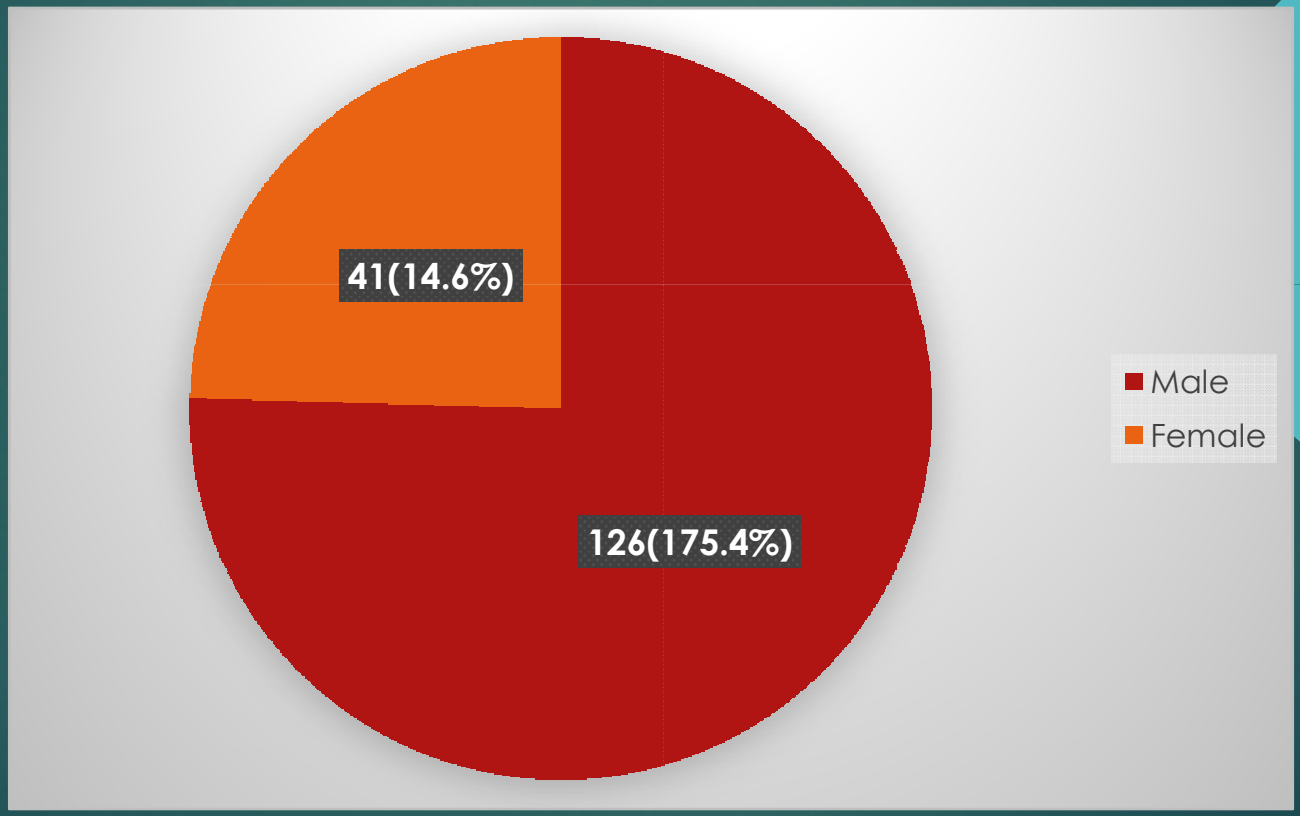
- Male predominance was found in this study, 126 (75.4%) were male and 41 (24.6%) were female.
- Mean ±SD age of 167 cases was 54.6 ±15.8 years, ranged from 30 to 75 years. Majorit 101 (60.5%) of cases had age between 50 – 69 years.
- Out of 167 cases, 40 (24%) cases were presented with speech deficit while 112 (67.1% cases had GCS > 12, 39 (23.4%) cases presented with GCS 8 – 12 and 16 (9.6%) cases had GCS 3 – 7.
- Ischemic heart Disease was the most common cardiac risk factor of ischemic stroke found in 19 (11.4%) followed by altrial fibrillation in 15 (9%) cases, LVH in 15 (9%) patients, cardio myopathy in 11 (6.6%) cases, and Valvular heart disease was seen in (3.6%) of cases.
- In other risk factors, hypertension was the most common factor leading to stroke 109 (65.3%) followed by dislipidemia 31 (18.6%), cigarette smoking 28 (16.8%), alocoholism 23 (13.8%) while positive family history was seen in 18 (10.8%) of cases.

RESULTS

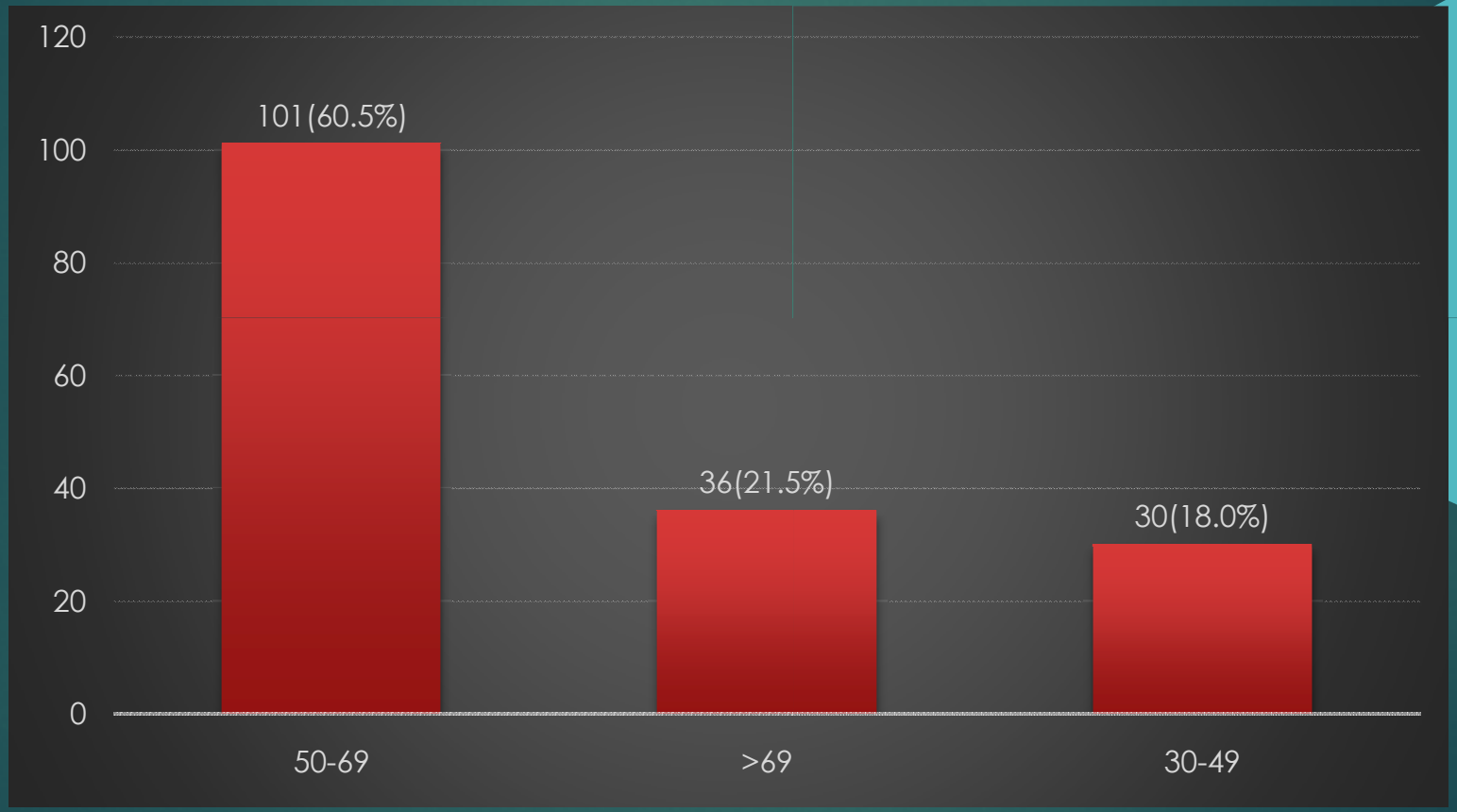
Mean (±SD) duration of Valvular heart disease was 11.3 ±3.2 years, Ischemic heart Disease 12.6 ±3.9 Years, Altrial Fibrillation 4.2 ±1.9 Years, LVH 3.5 ±1.1 years, Cardio myopathy was 4.2 ±1.9 years.



GENDER DISTRIBUTION
n = 167



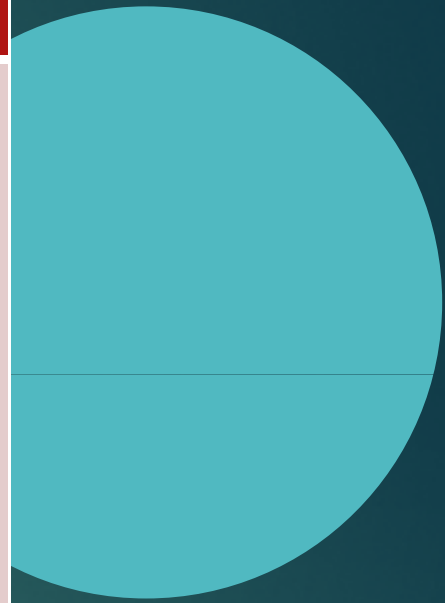
AGE DISTRIBUTION
n = 167



DISTRIBUTION OF FACTORS LEADING TO ISCHEMIC STROKE

n = 167

GCS	Frequency	Percentages
3-7	16	9.6%
8-12	39	23.4%
>12	112	67.1%
Speech deficit	40	24.0%



Subjects and Methods

A total of 167 stroke patients with cerebrovascular accident who were admitted in the Medical ward were evaluated and those patients who met the inclusion criteria were enrolled in this study. All patients had CT scans of the brain. The results of the CT scan was compared with clinical diagnosis on case to case basis and precision of clinical diagnosis was ascertained.

Results

Mean age was 60.6 ± 15.8 years. Gender distribution showed male preponderance (Male:Female= 3.1:1). Ischemic heart Disease was the most common cardiac risk factor of ischemic stroke found in 19 (11.4%) followed by atrial fibrillation in 15 (9%) cases, LVH in 15 (9%) patients, cardio myopathy in 11 (6.6%) cases, and Valvular heart disease was seen in 6 (3.6%) of cases.

DISCUSSION

Stroke is the main cause of adult disability and the third most common cause of mortality in the world.

Studies such as the World Health Organization's MONICA (Monitoring of Trends and Determinants of Cardiovascular Disease) Project have shown that relative to Caucasians, Asians have a higher prevalence of stroke.

The burden of stroke in Asia is predicted to increase, both in absolute terms and as a proportion of total disease burden, due to rapid population aging and lifestyle changes.

the minor differences in the prevalence of stroke risk factors in different communities are probably due to differences in culture, disease patterns, living habits and distribution of various ethnic groups.

In this study mean age was 60.6 ±15.8 years which is in accordance with the study conducted by Iqbal, 60.8 years and Asghar 63.4 years and much lower than 70 years in united states.

- This difference may be due to better awareness and control of risk factors in United States and shorter life span in Pakistan.
- Compared with a review study,[132] In this study ischemic heart disease was found most common cardiac risk factor (11.4% cases), this proportion was low in contrast to a hospital-based registry in Taiwan,[133] in which researchers reported that 26% of their ischemic stroke patients had ischemic heart disease.
- Retrospective analysis from Pakistan revealed a prevalence of hypertension of 50.2% (304/606) patients with stroke (both ischemic and hemorrhagic), but prevalence in ischemic stroke is not reported.
- [1] HTN is the most prevalent and powerful modifiable risk factor for both ischemic and hemorrhagic stroke, irrespective of geographic region and ethnic group
- , this analysis identified several vascular risk factors that were significantly associated with increased risk of ischemic stroke. The results have implications for clinical practice and are helpful for devising stroke prevention strategies. We suggest that a population-based study involving more vascular risk factors should be performed in the future for generalization.

Conclusion

Results of the present study were clearly showing that Ischemic heart Disease (11.4%) was the most common risk factors of ischemic stroke, while atrial fibrillation was the second common risk factor found in this study followed by LVH. In conclusion, the frequency of cardiac risk factors was high in this study that is similar to that observed in developed countries.