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General Medicine

CLINICAL PROFILE OF CARDIO EMBOLIC STROKE

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ABSTRACT

INTRODUCTION- Embolic stroke is recognized increasingly as an important cause of stroke. This is the commonest cause of stroke. The characteristic feature is the abrupt onset of a focal neurologic deficit. In most cases of cerebral embolism, the embolic material consists of a fragment that has broken away from a thrombus within the heart. Cardio embolic stroke accounts for approximately 15% of all strokes and is thought to be one of the more preventable types of strokes. This Cardio embolic stroke is largely preventable, making measures of primary prevention valuable. Once stroke secondary to cardiac embolism has occurred, the likelihood of recurrence is high; thus secondary prevention is also equally important. The cardiac lesions causing the stroke have great importance in morbidity and mortality of the illness. 75 percent of cardiogenic emboli lodge in the brain.

MATERIALS AND METHODS: All stroke patients admitted in the above period Stroke patients who satisfied the set criteria **STUDY DESIGN:** Observational Prospective hospital based study.

PERIOD OF STUDY: May 2018 to April 2019.

STUDY AREA: The study was conducted in the department of General Medicine, Alluri Sitaram Raju Academy of Medical Sciences, Eluru, West Godavari district, Andhra Pradesh.

STUDY POPULATION: All the cases admitted in the department of General Medicine, Alluri Sitaram Raju Academy of Medical Sciences, Eluru, during the study period were considered for the study.

INCLUSION CRITERIA: 1.STROKE as defined by WHO. 2**.** All stroke patients with ECG or Echo evidence of cardiac lesion 3. Do not satisfy the exclusion criteria

EXCLUSION CRITERIA: 1. Patients with TIA 2. Patients with haemorrhagic stroke 3. Patients with normal heart as evidenced by Clinical examination, ECG and Echo 4. Patients with major renal, hepatic and cancerous disease. 5. Stroke patients with lab evidence of SLE

RESULTS:

CLINICAL PROFILE: Hemiparesis - 40(100%) Hemianaesthesia - 6(15%)Hemianopia - 11(27.5%),Aphasia - 25(62.5%)**,**Cranial nerve palsies - 31(77.5%), Cerebellar signs – nil.

ARTERIAL TERRITORY :MCA – - 25(62.5%),MCA&ACA -2 (5%), MCA & PCA - 10(25%), ACA - 2(10%) , PCA - 1(2.5%).

CONCLUSIONS : Cardio embolic stroke is common among males and the median age of presentation is 51.earliest age reported was 25. 1).Onset of stroke in most of the cases (30patients) occurred during daytime hours 6am-10pm 2. Symptoms of stroke appeared during routine work in most cases(50%). 3. Hemiplegia was the commonest presentation and clinical profile correlated with CT findings in all cases. Among the cranial nerves, facial nerve was the only nerve involved.4. Atrial fibrillation was found in significant proportion of cases (47.5%)

KEYWORDS : Atrial Fbrillation, Aphasia, Aca-Anterior Cerebral Artery, Cardioembolic Stroke, Mca-Middle Cerebral Artery, Hemiplegia, Hemiparesthesia, Hemianopia, Pca-Posterior Cerebral Artery.

INTRODUCTION

Embolic stroke is recognized increasingly as an important cause of stroke. This is the commonest cause of stroke. The characteristic feature is the abrupt onset of a focal neurologic deficit. In most cases of cerebral embolism, the embolic material consists of a fragment that has broken away from a thrombus within the heart. Cardio embolic stroke accounts for approximately 15% of all strokes and is thought to be one of the more preventable types of strokes . A study published in 1989 reported a cardio embolic mechanism in 23.5% of 540 consecutive stroke patients, whereas the German Stroke Data Bank, published in 2001, reported a cardio embolic mechanism in 25.6% of patients. This cardio embolic stroke is largely preventable, making measures of primary prevention valuable. Once stroke secondary to cardiac embolism has occurred, the likelihood of recurrence is high; thus secondary prevention is also equally important. The cardiac lesions causing the stroke have great importance in morbidity and mortality of the illness. 75 percent of cardiogenic emboli lodge in the brain. However, the designation of an ischemic stroke as cardio embolic is usually presumptive based on the associated supportive factors at hand. For example, the presence of a trial fibrillation in an older stroke patient makes cardio embolism the most likely mechanism until proved otherwise. Coexistent significant valvular heart disease would make the mechanism of cardio embolism even more likely. Conversely, a relatively normal echocardiogram and the presence of high-grade carotid stenosis ipsilateral to the infarct would make the mechanism of cardio embolism more questionable. Significant cardiac lesion in the form of Rheumatic vascular heart disease or ischemic heart disease which predispose to formation of thrombus in cardiac chambers which inturn lead to recurrent embolic stroke. As per various studies embolic stroke is commonly caused by cardiac lesion which fact implies that this is preventable if cardiac lesion is promptly identified and cured. Atrial fibrillation either rheumatic or non rheumatic predisposes to embolic stroke as per text book and studies. So our study focuses on significance of cardiac lesion in etiology of embolic stroke.

AIMS OF THE STUDY

1. To study the significance of the time of onset of cardio embolic stroke
2. To identify the age distribution in stroke patients.
3. To identify the arteries involved in cardio embolic stroke

MATERIALS AND METHODS

All stroke patients admitted in the above period Stroke patients who satisfied the set criteria

STUDY DESIGN: Observational Prospective hospital based study

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1. Patients with TIA
2. Patients with haemorrhagic stroke
3. Patients with normal heart as evidenced by Clinical examination, ECG and Echo
4. Patients with major renal, hepatic and cancerous disease.
5. Stroke patients with lab evidence of SLE

METHODOLOGY
The study was carried out on 50 patients admitted during the period of May 2018 to April 2019 in Alluri Sitarama Raju Academy of Medical Sciences hospital, Eluru.

RESULTS:
40 patients who satisfied all the above criteria were included in the study. 36 males and 4 females were selected according to the criteria's. Following observations were made out of 40 patients at the time of admission. All the patients were admitted with hemiparesis or hemiplegia of sudden onset. The weakness was maximum at its onset in all patients as in any other case of embolic stroke. Out of 40 cases 22 patients were known to have rheumatic valvular hear disease who were fully evaluated in the past. The earliest age reported was 14 at which patient had symptoms of rheumatic fever. All the patients were subjected to cardiac evaluation and CT brain. CT findings of all the patients proved ischemic infarct in any of the arterial territory.

1.TIME OF ONSET

Time of onset	No. of patients	Percentage
6.00am to 2.00pm	15	37.5%
2.00pm to 10.00pm	15	37.5%
10.00pm to 6.00am	10	30.0%

2. AGE DISTRIBUTION
20-40 years : 22.50%
40-60 years : 50%
Above 60 years : 27.50%

3. ATRIAL FIBRILLATION

Atrial fibrillation	Number	Percentage
Present	19	47.5%
Absent	21	52.5%
Total	40	100%

4. CLINICAL PROFILE
Hemiparesis - 40(100%)
Hemianaesthesia - 6(15%)
Hemianopia - 11(27.5%)
Aphasia - 25(62.5%)
Cranial nerve palsies - 31(77.5%)
Cerebellar signs – nil

5. ARTERIAL TERRITORY
MCA – - 25(62.5%),
MCA&ACA - 2 (5%),
MCA & PCA - 10(25%),
ACA - 2(10%) ,
PCA - 1(2.5%)

DISCUSSION:
The present work is a longitudinal hospital based study focusing on pattern of evolution of cardio embolic stroke and clinical profile that caused the stroke.

These criteria for inclusion and exclusion were changes based on similar studies done from other centers in the world.

In our prospective study of cardio embolic stroke, incidence of stroke was high among males (90%), especially above 45yrs (60%). 36 males and 4 females were included in this study. In males earliest age at which stroke appeared was 25 and highest age was 78.

Regarding age distribution, 20 patients were in the age group of 20 – 40 which was 50% next common age group to be involved in above 60 years having incidence of 27.5%.

A study on stroke profile by department of internal medicine, Santiago, Chile shows that Out of 91 embolic stroke male – female ratio was 85;15% whereas in our study ratio is 90;10%.

Regarding time of onset of stroke, most of the patients (15) gave history of appearance of symptoms in the morning hours i.e., 6am-2pm. Onset of stroke in the evening hours was also of same frequency in the time 2pm-10pm (15 patients)

In the analysis of clinical profile all the 40 patients were having hemiparesis or hemiplegia 6 patients were found to have sensory dysfunction. Speech disorder in the form of aphasia was present in 25 patients (62.5%). Only cranial nerve found to involved was UMN type of VII cranial nerve (77.5%). Cerebellar dysfunction was present in none of the patients. Visual disturbance in the form of homonymous hemianopia in 11 out of 40 cases.

On considering arterial territory, most common arterial territory found to be involved was that of Middle Cerebral Artery i.e in 25 out of 40 cases (62.5%). Isolated Posterior cerebral artery was involved in 1 cases (2.5%). Least common was that of Anterior cerebral artery involved in 2cases (5%). MCA was involved in combination with ACA in 2 cases. MCA was involved in combination with PCA in 10 cases. Even though MCA territory was involved commonly in all cardio embolic stroke, 44% of PCA stroke was caused by cardio embolism.

CONCLUSIONS:
Cardio embolic stroke is common among males and the median age of presentation is 51.earliest age reported was 25.
1. Onset of stroke in most of the cases (30patients) occurred during daytime hours 6am-10pm
2. Symptoms of stroke appeared during routine work in most cases (50%).
3. Hemiplegia was the commonest presentation and clinical profile correlated with CT findings in all cases. Among the cranial nerves facial nerve was the only nerve involved.
4. Atrial fibrillation was found in significant proportion of cases (47.5%)
5. As with other study arterial territory commonly involved was Middle cerebral artery that was confirmed by CT scan.

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