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THE MISSING LINK -MRI AND ECHOCARDIOGRAM FINDINGS IN PATIENT WITH MIGRAINE

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Abstract

INTRODUCTION

Migraine is a recurrent primary headache disorder that has close links to the neurological and cardiac systems. Evidence is accumulating that migraine with aura is a marker for increased risk of cardiovascular disease1,2,3 specifically stroke.The MRI and echocardiographic findings in migraine patients differ greatly as compared to other patients . Our study aims to find out the unique MRI and echocardiogram findings in this particular study group.

AIM OF THE STUDY

To describe the MRI brain and echocardiogram findings in migraine patients

MATERIALS AND METHODS

This is a prospective cross sectional study 35 patients in the age group of 18-45 years with migraine were included in the study.

Patient coming to Bangalore Medical College and reseach institute and its attached hospitals

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were subjected to clinical examination,MRI Brain,Echocardiogram & other etiological workup as needed.

RESULTS

The mean age of patients was 35.9+/- 4.52 years with a male preponderance (70%).In our study MRI brain findings of White Matter Changes are 30(84.3%), Lacunar Infarcts are 4(12.5%), Calcified Granulomas are 1(3.12%).Our study highlights the need for aggressive management of tradi-tional risk factors in adults and also the need for exten-sive work-up in every patient in order to find correct aetiology.

CONCLUSION

•In our series of patients with migraine risk factors was significantly different and smoking was found to be leading risk factor in this group.

•Non specific white matter changes in MRI brain was found to be common finding in this group.

•Further studies with larger patient population are required to confirm these findings.

Keywords: MRI, Echocardiogram, Migraine

INTRODUCTION

Migraine is a recurrent primary headache disorder that has close links to the neurological and cardiac systems. Evidence is accumulating that migraine with aura is a marker for increased risk of cardiovascular disease1,2,3 specifically stroke.The MRI and echocardiographic findings in migraine patients differ greatly as compared to other patients . Our study aims to find out the unique MRI and echocardiogram findings in this particular study group.

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MIGRANINE WITH AURA	MIGRAINE WITHOUR AURA
17 pts (10 pts – female 7 pts – male)	18 pts (12 pts-female ,6 pts-male)

OTHER RISK FACTORS	NO OF PATIENTS (%)
SMOKING	13(34.3%)

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ALCHOL	7(16.25%)
OBESITY	8(18.75%)
DEPRESSION	6(12.5%)
STRESSFUL LIFE STYLE	2(6.25%)
HEAD INJURY	1(3.12%)

MRI DATA

MRI BRAIN FINDINGS	NO OF PATIENTS (%)
WHITE MATTER CHANGES	30(84.3%)
LACUNAR INFARCTS	4(12.5%)
CALCIFIED GRANULOMAS	1(3.12%)

ECHOCARDIOGRAPHIC FINDINGS

FINDINGS	NO OF PATIENTS (%)
MITRAL VALVE PROLAPSE	7(20%) FEMALE 4(58%) MALE 3(42%)
PATENT FORAMEN OVALE	5 (15%)MALE 4(80%) FEMALE 1(20%

DISCUSSION

White matter changes in MRI brain of migraine patients is more frequent than in other population. Migraine has a major impact on individual & society.Accurate classification of MRI abnormalities is useful for guiding treatment decisions .However, few studies have focussed on MRI abnormalities in migraine patients(4,5,6,7,8).The current prospective study is focusing on MRI brain abnormalities in migraine patients admitted in BM.C.R.I.

Similar to studies conducted in western countries, a higher male predominance was observed in the current study(8).

The most common MRI abnormality in the current study is non specific white matter changes(5,6,7,8). The most common risk factor was smoking which has not been considered as a risk factor in previous studies(4,5,6,7,8).

In a retrospective study of 82 patients. Lipton & colleagues reported that white matter abnormalities in MRI(32.71%) was common followed by venous angioma(20.5%) & lacunar infarcts(12.14%).most common trans thoracic echocardiographic findings is mitral valve prolapse 7(20%) followed by patent foramen ovale 5(15%) of patients .

The current study has several limitations, the first being the number patients recruited ,this study included patients admitted from September 2018 to July 2019. Lastly, this is a hospital-based study and the results may not be generalisable to the general population. Despite these limitations, the current study is focusing on the MRI brain abnormalities and echocardiographic

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findings in migraine patients in India. Our study highlights the need for aggressive management of tradi-tional risk factors in adults and also the need for exten-sive work-up in every patient in order to find correct aetiology. One possible mechanism which implicates a role for the right-to-left shunting the development of migraine is that subclinical emboli and metabolites from the venous system bypass the pulmonary circulation via the PFO, thus entering the systemic circulation and resulting in irritation of the trigeminal nerve and brain vasculature, which in turn triggers migraine [9,10]. One such metabolites serotonin which is normally metabolised by the pulmonary monoamine oxidase enzyme. Serotonin is released from aggregating platelets. Platelet activation and aggregation has been shown to be increased in patients with migraine.
27% of patients with MVP had migraine headache, and about quarter of the patients with migraine has MVP [10,11].

CONCLUSION

•In our series of patients with migraine risk factors was significantly different and smoking was found to be leading risk factor in this group.
•Non specific white matter changes in MRI brain was found to be common finding in this group.
•Further studies with larger patient population are required to confirm these findings.

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