ISSN: 0975-3583, 0976-2833 VOL 12, ISSUE 04, 2021

Evaluation of MRI findings in Migraine patients

Naresh Kumar[1], Rajesh K Badhan[2]
[1, 2]Assistant Professor, Department of Radio Diagnosis, Rajindra Hospital, Patiala, Punjab, India

Corresponding author: Naresh Kumar, Assistant Professor, Department of Radio Diagnosis, Rajindra Hospital, Patiala, Punjab, India. Email ID: E mail drnaresh525@gmail.com

Abstract
Background: Migraine is referred to as a neurovascular headache because it is most likely caused by an interaction between blood vessel and nerve abnormalities. Hence; the present study was undertaken for evaluating MRI findings in Migraine patients.**Materials & methods:**A total of 20 Migraine patients were analysed. Relevant history, clinical examination and routine investigations were done. Patients underwent MRI investigations. Imaging was performed using a head coil with patient in a supine position. MR imaging findings were compiled as per proforma and subjected to analysis using SPSS software. **Results:**Among patients with Migraine, significant findings on MRI were seen in 5 percent of the patients (1 patient).On MRI analysis, only one patient showed significant findings. It showed Hyperintensity seen at subcortical white matter on T2, Hyperintensity seen at subcortical white matter on T2 FLAIR in subcortical white matter.**Conclusion:**Migraine patient occasionally have abnormal MRI findings to explain their headaches.
Key words: Migraine, MRI

INTRODUCTION

According to US Guidelines on Neuroimaging in Patients with Non-Acute Headache, Non-acute (or chronic) headache is defined as all headache syndromes lasting for at least four weeks.[1]Headache is a common clinical feature in patients in the emergency room and in general neurology clinics. For physicians not experienced in headache disorders it might be difficult sometimes to decide, whether neuroimaging is necessary or not to diagnose an underlying brain pathology. Headache is the most often reported neurological symptom.[1- 3]Migraine is referred to as a neurovascular headache because it is most likely caused by an interaction between blood vessel and nerve abnormalities. After tension headache, the second most frequently occurring primary headaches are Migraine. Neuroimaging should be performed, however, on those suspected of having an underlying disorder based on the presence of additional symptoms and signs that do not fit the clinical diagnosis of primary headache (e.g., atypical headache patterns, a history of seizures, and/or focal neurological symptoms or signs). Clinical guidelines pertaining to neurophysiological tests and neuroimaging procedures for non-acute headache recommend magnetic resonance imaging (MRI) for autonomic nervous headache.[4- 6]Hence; the present study was undertaken for evaluating MRI findings in Migraine patients.

MATERIALS & METHODS

The present study was undertaken for evaluating MRI findings in Migraine patients. A total of 20 Migraine patients were analysed. Relevant history, clinical examination and routine investigations were done. Patients underwent MRI investigations. Imaging was performed using a head coil with patient in a supine position. MR imaging findings were compiled as per proforma and subjected to analysis using SPSS software.

RESULTS

30 percent of the patients belonged to the age group of 41 to 50 years. 25 percent and 20 percent of the patients belonged to the age group of 31 to 40 years and more than 50 years respectively. Mean age of the patients was 41.3 years.80 percent of the patients of the present study were females. Among patients with Migraine, significant findings on MRI were seen in 5 percent of the patients (1 patient).On MRI analysis, only one patient showed significant findings. It showed Hyperintensity seen at subcortical white matter on T2, Hyperintensity seen at subcortical white matter on T2 FLAIR in subcortical white matter.

Table 1: Age-wise distribution of patients

Age group	Number of patients	Percentage of patients
Less than 20	2	10
20 to 30	3	15
31 to 40	5	25
41 to 50	6	30
More than 50	4	20
Total	20	100

ISSN: 0975-3583, 0976-2833 VOL 12, ISSUE 04, 2021

Table 2: Distribution of patients with Migraine on the basis of MRI findings

Parameter	Presence of significant MRI findings		Absence of significant MRI findings	
	Number of patients	Percentage of patients	Number of patients	Percentage of patients
Patients with Migraine	1	5	19	95

Table 3: MRI fining in patients with Migraine type of headache

Number of patients	**T1**	**T2**	**T2 FLAIR**	**DWI**	**SWI**	**Location**
1	-	Hyperintensity seen at Subcortical white matter	Hyperintensity seen at Subcortical white matter	-	**-**	Subcortical white matter

DISCUSSION

Migraine is the second most common form of headache, often described as recurrent throbbing or pulsating, moderate to severe, and often unilateral pain that lasts 4–72 hours with complete freedom between the attacks (episodic). The headache is associated with nausea, vomiting and/or sensitivity to light, sound or smell. The patient prefers to lie still in a dark and quiet room, and to avoid physical activity. Around one-third of patients perceive an aura, described as a progressive focal neurological symptom lasting 5–60 minutes. Visual aura, in the form of zigzag lines or spreading scintillating scotoma (diminished sight), is by far the most common, although unilateral sensory disturbances and/or dysphasia may occur either at the same time or sequentially.[6-10]Hence; the present study was undertaken for evaluating MRI findings in Migraine patients.

In the present study, 30 percent of the patients belonged to the age group of 41 to 50 years. 25 percent and 20 percent of the patients belonged to the age group of 31 to 40 years and more than 50 years respectively. Mean age of the patients was 41.3 years.80 percent of the patients of the present study were females. Among patients with Migraine, significant findings on MRI were seen in 5 percent of the patients (1 patient).Ferbert A et al investigated MRI pattern of a total of 45 patients suffering from classic migraine; 25 patients had been treated in our department for classic migraine over the past 2 years (group A), and 20 other patients investigated between 1976 and 1984 were reexamined for this study (group B). Thirty-two age- and roughly sex-matched healthy volunteers underwent magnetic resonance imaging and served as controls (group C). There was a trend for patients with classic migraine to have more subcortical patchy lesions on T2 -weighted magnetic resonance imaging. In a comparison of our control subjects and patients with a history of >20 attacks of classic migraine taken from groups A and B, this difference in number of lesions was significant (/7=O.O2). The results suggest that patchy lesions in patients with classic migraine should be interpreted with particular caution before diagnosing a demyelinating disease since the lesions could be ischemic in origin.[10]

In the present study, on MRI analysis, only one patient showed significant findings. It showed Hyperintensity seen at subcortical white matter on T2, Hyperintensity seen at subcortical white matter on T2 FLAIR in subcortical white matter.Lewis DW et al assessed the utility of neuroimaging in the evaluation of children presenting with two of the most common forms of headache, migraine and chronic daily headache, and to determine the utility and pathological yield of neuroimaging in specific headache syndromes in children whose neurological examinations are normal. Twelve (11.2%) patients with migraine received an MRI, 2 (16.7%) of which were considered abnormal. Both of the abnormal findings were Chiari type I malformations. Eight (26.7%) of the patients with chronic daily headache had an MRI, 2 (25.0%) of which were abnormal. One of the abnormalities was a Chiari I malformation, and the other was an occult vascular malformation. The yield of neuroimaging in children with uncomplicated migraine and normal neurological examination was 3.7%. The yield in children with chronic daily headache and normal neurological examination was higher at 16.6%.[11]

CONCLUSION

Migraine patient occasionally have abnormal MRI findings to explain their headaches.

REFERENCES

1. Stovner LJ, Hagen K, Jensen R, Katsarava Z, Lipton RB, Scher AI, Steiner TJ, Zwart J-A. The global burden of headache: a documentation of headache prevalence and disability worldwide. Cephalalgia. 2007;27:193–210.
2. Headache Classification Subcommittee of the International Headache Society The international classification of headache disorders, 2nd edition. Cephalagia. 2004;24(Suppl 1):1–160.
3. Bartleson JD. When and how to investigate the patient with headache. SeminNeurol. 2006;26(2):163-70.
4. Goadsby PJ. To scan or not to scan in headache. Editorial. BMJ. 2004;329:469-70.
5. Morimatsu M. Classification of chronic headache. Japan Medical Association Journal. 2004;47(3):112-7.

ISSN: 0975-3583, 0976-2833 VOL 12, ISSUE 04, 2021

6. Holle D, Obermann M. The role of neuroimaging in the diagnosis of headache disorders. TherAdvNeurolDisord. 2013;6(6):369–374.
7. Peters KS. Secondary headache and head pain emergencies. Primary Care: Clinics in Office Practice. 2004;31(2):381-93.
8. Callaghan BC, Kerber KA, Pace RJ, Skolarus L, Cooper W, Burke JF. Headache neuroimaging: Routine testing when guidelines recommend against them. Cephalalgia. 2015;35(13):1144–1152.
9. Health Quality Ontario. Neuroimaging for the evaluation of chronic headaches: an evidence-based analysis. Ontario health technology assessment series. 2010;10(26):1-57.
10. Ferbert A, Busse D, Thron A. Microinfarction in Classic Migraine? A Study with Magnetic Resonance Imaging Findings.Stroke. 1991; 2: 1010-1014.
11. Lewis DW, Dorbad D. The utility of neuroimaging in the evaluation of children with migraine or chronic daily headache who have normal neurological examinations.Headache. 2000 Sep;40(8):629-32.