

Original Research

Evaluation of MRI findings in Migraine patients

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ABSTRACT:

Background: The current study had been conducted to evaluate the findings of MRI among migraine subjects. **Materials & methods:** In total, one hundred patients with migraines were evaluated. A clinical examination, relevant history, and routine investigations were finished. The patients underwent MRI examinations. Using a head coil, imaging was performed on the supine subject. Using SPSS software, the MR imaging results were analyzed after being created in compliance with the proforma. **Results:** Five percent of patients with migraines had substantial MRI abnormalities (one patient). There was only one patient with noteworthy results from the MRI analysis. Hyperintensity was observed at subcortical white matter on T2, and subcortical white matter FLAIR showed hyperintensity at subcortical white matter on T2. **Conclusion:** Migraine subjects occasionally have abnormal MRI findings to explain their headaches.

Key words: Migraine, MRI

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INTRODUCTION

A headache can have many different origins, making it a frequent ailment. It is believed that over 70% of Americans suffer from headaches^{1,2} with benign primary headache disorders accounting for the great majority of headaches rather than serious pathological illnesses.³ The World Health Organization (WHO) lists migraine as the sixth most debilitating ailment in the world. It is a severe and incapacitating brain condition.^{4,5} As the most common neurological condition affecting adults, migraines can impact up to 12% of the population overall.⁶ Migraine is a major public health problem, with yearly expenses exceeding \$19.6 billion in the United States⁷ and €27 billion in Europe⁸ (including lost productivity). However, if a patient exhibits other symptoms and indicators that do not match the clinical diagnosis of primary headache, neuroimaging should be done in order to rule out the possibility of an underlying illness. Magnetic resonance imaging (MRI) is recommended for autonomic nerve headache in clinical guidelines related to neurophysiological testing and neuroimaging methods for non-acute headache.⁹⁻¹¹ Hence; the present study was undertaken for evaluating MRI findings in Migraine patients.

MATERIALS & METHODS

In total, one hundred patients with migraines were evaluated. A clinical examination, relevant history, and routine investigations were finished. The patients underwent MRI examinations. Using a head coil, imaging was performed on the supine subject. Using SPSS software, the MR imaging results were analyzed after being created in compliance with the proforma.

RESULTS

Forty-five percent of the individuals were in the 41–50 age range. About twenty-nine percent and one percent of the patient population, respectively, were between the ages of 31 and 40 and over 50. Three-quarters of the migraine sufferers, or 29 patients, had MRIs that showed anything unusual. The hyperintensity observed at the subcortical white matter on T2 FLAIR was observed at the subcortical white matter.

Table 1: Age-wise distribution of patients

Age group	Number of patients	Percentage of patients
Less than 20	12	12
20 to 30	13	13
31 to 40	29	29
41 to 50	45	45
More than 50	01	01
Total	100	100

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	39	39	61	61

DISCUSSION

Migraine is a genetically influenced complex disorder characterized by episodes of moderate-to-severe headache, most often unilateral and generally associated with nausea and increased sensitivity to light and sound. The word migraine is derived from the Greek word "hemikrania," later converted into Latin as "hemigranea." The French translation of such a term is "migraine."¹² Migraine is a common cause of disability and loss of work. Migraine attacks are complex brain events that unfold over hours to days in a recurrent matter. The most common type of migraine is without aura (75% of cases). While standard anatomic imaging appears to be of limited diagnostic value in migraine, recent studies have suggested significant cortical thinning may occur within regions within the pain matrix. Additionally, patients with migraine appear to be at higher risk for T2 hyperintense lesions, suggesting ischemic or degenerative processes may be involved. Early voxel based morphometry (VBM) studies focusing on gray matter thickness and density did not observe significant differences in cortical density in patients with migraine.¹³

Hence; the present study was undertaken for evaluating MRI findings in Migraine patients.

In the current study, forty-five percent of the individuals were in the 41–50 age range. About twenty-nine percent and one percent of the patient population, respectively, were between the ages of 31 and 40 and over 50. Three-quarters of the migraine sufferers, or 29 patients, had MRIs that showed anything unusual. The hyperintensity observed at the subcortical white matter on T2 FLAIR was observed at the subcortical white matter. **GS Rai et al¹⁴** evaluated the findings of computed tomography (CT) and Magnetic Resonance Imaging (MRI) among patients presented with the chief complaint of headache and to compare the findings between two groups of patients. This retrospective observational study was carried out in 500 selected patients, who underwent CT or MRI scan of head in Peoples College of Medical Sciences and Research centre, Bhopal, MP during the period of 2 year in between Jan 2013 to Dec 2014. Siemens Somatom sensation 40 slice MDCT and Siemens magnetom 1.5T MRI scanner were used for imaging. Five hundred patients of 10 to 70 year age were selected for the study based on our criteria of selection. All 500 patients were divided in to two groups A and B based on presence or absence of red flag signs and CWC signs. Group A consists of 48 patients having one or more red flag or CWC signs and group B consists of 452 patients those don't have any above signs. 29 cases (60.4%) out of total 48 cases of group A is suffering from chronic headache as compared to 97 cases (21.5%) out of total 452 patients of group B is having positive findings (p-value<0.05). Out of 500 patients, only 29 cases (5.8%) revealed some form of brain parenchymal pathology whereas other associated findings were seen in 97 cases e.g. sinusitis in 58 (11.6%), bone related pathology in 26 (5.2%) and chronic suppurative otitis media (CSOM) in 13 (2.6%) patients. It was concluded that CT/MRI in patients without red flag or CWC sign yielded very low percentage of clinically significant positive findings in neuroimaging. **Lewis DW et al¹⁵** 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%.

CONCLUSION

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

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