

Diagnostic Yield of CT Scan for Unexplained Headache

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ABSTRACT

Aim: To define that how frequently does a CT scan finds out the sources of unexplained headache.

Methodology: One hundred and thirty six patients with unexplained headache of more than 3 months duration not responding to treatment with both gender, were included from OPD of tertiary care unit, over a period of one year. All the patients had CT scan to find out the abnormalities.

Results: There were 58 (42.6%) female patients and 78 (57.4%) male patients in the study. CT scan could identify the lesion among 11 (8%) patients, while 125 (92%) patients showed no abnormality on CT scan. Sinusitis was the most common abnormality seen i.e. 4(36.4%) patients followed by stroke seen in 3 (27.2%) patients.

Conclusion: The diagnostic yield of CT scan in detecting any abnormality in patients with unexplained headache is low.

Keywords: Computed tomographic neuro imaging, unexplained headache, sinusitis

INTRODUCTION

Headache is a very common public problem in primary care unit and in the emergency department; with chronic headache of 90%.¹ Symptoms are assessed in 46% of the world population of adults as part of a headache syndrome. Primary headache ailments such as migraine or tension headache are the commonest factors. Worries of patients are about intracranial abnormality i.e. brain tumor with headache².

Incidence of brain tumors in the US is 46 per 100,000 annually and for subarachnoid hemorrhage (SAH), 9 per 100,000. Arteriovenous malformations (AVMs) are about one-tenth as common as saccular aneurysms.³ In one study, 897 subjects of migraine were studied and four were positive, i.e., 3 tumors, 1 AVM showing 0.4% yield. In patients with H/O undetermined headache, out of 1825 CT scans, 43 cases showed abnormalities i.e. 21 tumors, 8 hydrocephalus, 6 AVMs, 5 subdural hematomas and 3 aneurysms thus showing 2.4% yield.⁴ CT scan in assessing patients with unexplained headache has displayed an inconstant yield i.e. 0.4%, 1% and 2.4% in many studies.

METHODOLOGY

Table 2: Duration of headache with CT findings (n=11)

Duration of headache (months)	Sinusitis	SOL	Hemorrhage	Stroke	Ch subdural hematoma	Tumor	AVM
3 – 6	2 (18.2%)	0 (0)	1 (9.1%)	3(27.2%)	0 (0)	0 (0)	0 (0)
6 – 12	1 (9.1%)	1 (9.1%)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
> 12	1 (9.1%)	1 (9.1%)	0 (0)	0 (0)	1 (9.1%)	0 (0)	0 (0)
Total	4 (36.4%)	2(18.2%)	1 (9.1%)	3(27.2%)	1 (9.1%)	0 (0)	0 (0)

DISCUSSION

The mean age of the patients in this study was 44.8±23.3 years while in a study by Saberi H et al, the mean of age of the patients was 37.8 years⁵. So, this age group difference

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This study included 136 patients with unexplained headache of >3 months duration not responding to treatment and not having any neurological problem between 20-70 years of age with both gender, presenting in the department of Radiology for CT head advised by physicians, neurosurgeons and ophthalmologists. The study period was of one year i.e., 1-2-16 to 31-1-17. Patients with previous neurosurgery, H/o fits, recent head injury(<3 months before evaluation), prior neurological abnormalities and H/o cancer were excluded. Demographic features like age and sex were noted and statistical analysis was done using SPSS 20.

RESULTS

Detail of results is given in tables 1 and 2

Table 1: CT scan findings (n=11)

CT scan findings	n	%age
Sinusitis	4	36.4
Space occupying lesion	2	18.2
Hemorrhage	1	9.1
Chronic subdural hematoma	1	9.1
Stroke	3	27.2
Tumor	0	0
Vascular malformation: AVM/ Aneurysm	0	0

may be geographical. There were 57.4% male patients in our study, while 42.6% female patients. Saberi H et al. documented a female dominance with a frequency of 69% female patients in their study⁵. Ahmad A et al also noted a female dominance with 61% patients who were female and 39% were male⁶.

The diagnostic yield of CT scan in our study was 8%. Saberi H et al, conducted a study on 146 patients and found CT scan yield of only 6% patients⁵. Hadi N et al performed a study on 100 patients and CT scan pathologies were seen in 11% patients¹⁰. Joseph et al in their study found only 6 cases with SOL in 1900 migraine

patients. Of these six, five had neurologic findings on physical examination and one had headache on exertion⁷. Grosskreutz and Osborn found 3 abnormalities out of 100 patients with headache⁸. Baker examined 505 patients with acute or chronic headache and found 7% SOL⁹.

Sinusitis was the most frequent pathology (36.4%) in our study. Hadi N et al, also found a higher frequency of sinusitis in their study. Out of 100 patients, sinusitis was seen among 45% patients with abnormal CT findings¹⁰. In a study by Nawaz M et al, including 100 children of age range 4–18 years, abnormal CT scan findings were detected among 4% patients, all with sinusitis¹¹.

SOL were detected among 18.2% patients in our study. Becker LA et al, found that space occupying lesions were present among 14 (23.7%) out of 59 patients¹². Hadi N et al detected that space occupying lesions were present among 18.2% out of 11 patients who had positive findings on CT scan. The total number of patients in their study was 100¹⁰. Intracranial hemorrhage and subdural hematoma was present among 9.1% patients each in our study. Ahmad A et al, documented that intracranial hemorrhage was present among 15.6% patients, while 5.4% had an Intracerebral Haematoma⁶. The frequency of stroke in our patients was 27.2% which is much higher than other study by Evans RW, detected strokes among only 1.2% patients¹³.

CONCLUSION

CT scan is very frequently offered among patients with unexplained headache, but diagnostic yield is low. It is recommended that physicians must exercise good clinical judgment in their attempts to identify treatable disease.

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