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Evaluation of CT scan Findings In Patients Presenting With Headache

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Abstract

Background: Headache is one of the most common medical complaints. However only about 10% of patients with headache were due to secondary causes

Methods: Observational study was performed in all the 100 patients who underwent CT scan of head. Collected data was analyzed using SPSS programme.

Results: 74% of the CT scans were absolutely normal. Out of 100 patients only 11(11%) showed any form of brain parenchymal pathology. Other associated findings were sinusitis in 12(12%), bone related in 1(1.00%), and mastoiditis in 2(2.00%) patients.

Conclusion: CT scan of brain is rarely of help in the diagnosis of headache if it is not associated with other symptoms and or signs of an intracranial pathology.

Keywords: CT Scan, Headache, Neurological Symptoms.

Introduction

Headache is one of the most common medical complaints. However only about 10% of patients with headache were due to secondary causes. As the potential etiologies, can be life threatening and affect neurological function, headache cause understandable concern on the part of the patient and health care provider. Some serious brain disorders present with secondary headache, where the headache is caused by the disease. For example, a brain tumor is secondary cause of headache and is best diagnosed by early brain imaging, which is essential for optimal management of secondary headache disorders. However, brain tumors, account for less than 0.1% of the lifetime prevalence of headache.[1]

Discriminating between primary and secondary headache is the problem. Since by definition, primary headache does not need brain imaging because no underlying disease process exists. Primary headache, which include migraine, tension-type headache and cluster headache are benign. These headaches are usually recurrent and have no organic disease as their cause. Secondary headaches are caused by underlying organic diseases ranging from benign condition as sinusitis to life threatening causes like subarachnoid hemorrhage. In clinical practice, it is generally accepted that the so called red flags of headache should lead to a search for secondary headache.[2]

These include:

1. Change in the pattern of headache,
2. New onset of headache in people older than 50,
3. Onset of seizures or headache associated with systemic illness or personality change,

4. Headache with symptoms suggestive of raised intracranial pressure, such as new onset headache in the early morning; or headache that is worsening with coughing, sneezing, or straining should each be viewed with concern

Methods

Observational study was performed in all the 100 patients who underwent CT scan of head. The proforma was prepared and patients were grouped into two groups.

The group I represented the cases with headache and any form of neurological deficit as indicated in red flag signs.

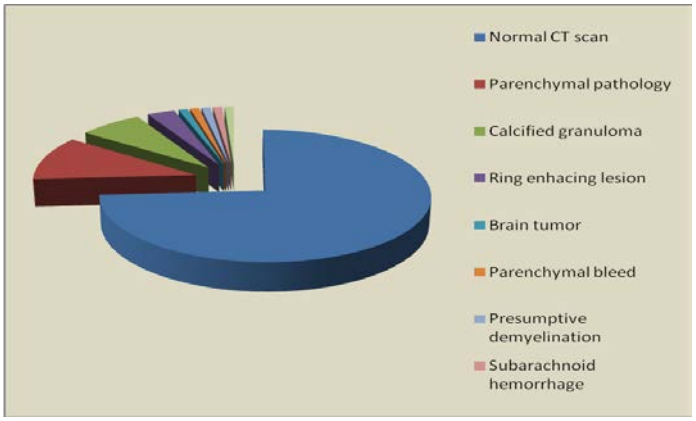
The Group II represented the cases of chronic headaches not associated with any red flag signs.

Collected data was analyzed using SPSS programme. For the continuous data, mean and standard deviation were considered while for the categorical data proportion and percentage were used.

Results

The age group ranged from 6 years to 80 years with the mean of 35.68 years.

Group I included 50 cases and 50 cases were included in Group II. 74% of the CT scans were absolutely normal. Out of 100 patients only 11(11%) showed any form of brain parenchymal pathology. Other associated findings were sinusitis in 12(12%), bone related in 1(1.00%), and mastoiditis in 2(2.00%) patients.



Out of the 11 brain parenchyma pathology, 7 were cases of calcified granulomas, 3 ring enhancing lesions, 1 cases of presumptive brain tumor, 1cases of parenchymal bleed,1 cases of presumptive demyelination, 1 case of subarachnoid hemorrhage and 1 case of aneurysm. In overall the most prevalent pathology found was sinusitis which was located in the maxillary sinus.

Table 1. Neurological finding in CT scan

	Group-I	Group-II	p-value
Neurological finding in CT scan	22	4	0.001
Normal	28	46	
Total	50	50	

The findings were significant in headache associated with other neurological findings, 22 out of 50 in group I as compared to chronic headache (Group II) in which 4 cases out of 50 were positive.

Discussion

The International Headache Society classifies headache into primary (without any organic cause) or secondary (with an established cause). Primary headache includes migraine, cluster type headaches. With these types of headaches no imaging modality has proved to be necessary.[3]

A study was conducted at Samsun, Turkey, to investigate the frequency of intracranial lesions detected by CT scanning amongst adult patients who had clinical warning criteria (CWC) for secondary neurological headaches and to determine the importance of CWC in predicting a possible lesion on CT scan.8 The CWC included:

1. Increase in the intensity and frequency of headache,
2. Abrupt onset of headache,
3. Persistence of headache despite analgesics,

4. Alteration of the characteristics of headache and
5. Presence of focal neurological symptoms or findings[4]

Out of all the patients, 11 % had a neurological cause identified by CT scan and 74% had a normal CT scan in our study.

A study of pediatric patients was done at George Washington University School of Medicine, Washington, DC, to determine whether CT scans led to better acute care of young children with headache presenting to the emergency department. It was found that for young children presenting with headache but normal neurological examination and non-worrying history, CT scans seldom lead to diagnosis or contribute to immediate management.[5]

The use of CT scanning in young children should be done very carefully to avoid the hazardous exposure to radiation at a young age. Previous studies have demonstrated that CT is of extremely low yield in patients who undergo imaging for chronic headache without neurologic abnormality.[6]

Conclusion

CT scan of brain is rarely of help in the diagnosis of headache if it is not associated with other symptoms and or signs of an intracranial pathology. When to scan a patient for headache is a dilemma faced by physicians in their daily practice. Patients with red flags or clinical warning criteria of secondary headache probably must undergo a CT scan of brain. In the absence of these, the only reason for doing a CT scan seems to be reassuring the patients and their loved ones.

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