



## ROLE OF EEG (ELECTROENCEPHALOGRAPHY) IN PRIMARY HEADACHE

### Neurology

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### ABSTRACT

**AIM:** To study about the EEG changes in primary headache in children and adults.

**Inclusion Criteria:** All patients presented with primary headache were included.

**Exclusion Criteria:** Patients presented with secondary headache of non neurological causes were excluded.

**METHODS:** EEG was done to all patients presented with primary headache, secondary headache of intracranial etiology.

**RESULTS:** This study is done in 300 patients with neurogenic headache. Males were (45.65 % (137)), Females were (54.35% (163)), Mean age in male adults (43.82) years, male children (9.66) years, Mean age in adult females (38.12) years, female children (11) years, Migraine headache (60%), Tension headache (13%), Autonomic Cephalalgia (12%), Secondary headache due to CNS problem (15%). Primary headache patients showed normal EEG pattern in comparing secondary headache patients, primary headache patients showed statistically significant normal EEG pattern in tension headache ( $P<0.00001$ ), Migraine headache ( $P<0.00001$ ), Autonomic Cephalalgia ( $P<0.00001$ ). Secondary headache patients with traumatic head injury showed predominant slow wave pattern in EEG.

### KEYWORDS

Electroencephalography, Primary headache, Secondary headache

### INTRODUCTION

Primary headache is a major cause of work loss in adult males and females, and also major reason for school abstinence in school children.

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To study about the EEG changes in primary headache in children and adults.

### Inclusion Criteria:

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### Exclusion Criteria:

Patients presented with secondary headache of non neurological causes were excluded.

### METHODS

EEG was done to all patients presented with primary headache, secondary headache of intracranial etiology.

### RESULTS

This study is done in 300 patients with neurogenic headache. Males were (45.65 % (137)), Females were (54.35% (163)), Mean age in male adults (43.82) years, male children (9.66) years, Mean age in adult females (38.12) years, female children (11) years, Migraine headache (60%), Tension headache (13%), Autonomic Cephalalgia (12%), Secondary headache due to CNS problem (15%). Primary headache patients showed normal EEG pattern in comparing secondary headache patients, primary headache patients showed statistically significant normal EEG pattern in tension headache ( $P<0.00001$ ), Migraine headache ( $P<0.00001$ ), Autonomic Cephalalgia ( $P<0.00001$ ). Secondary headache patients with traumatic head injury showed predominant slow wave pattern in EEG.

### DISCUSSION

Headaches may occur due to various reasons international headache society gives headache into different types. Headaches are rarely classified into primary or secondary headache. Primary headache includes tension headaches migraine headaches, cluster headaches, autonomic headaches and cranial neuralgia. Secondary headaches of CNS may be due to meningitis, intra cranial bleed, subarachnoid bleed, aneurysm rupture, arteriovenous malformation, brain tumor, and

cerebral venous thrombosis.

Headaches often result from traction or irritation of the meninges and blood vessels. Primary headaches are more difficult to understand than secondary headache. The exact mechanism of origin is not known. Migraine headaches are thought to be due to be cortical spreading depression and neuro inflammation. Tension headaches are due to activation peripheral nerves in the head and neck muscles. Cluster headaches may be due to activation of trigeminal nerve and hypothalamus and the exact cause is not known.

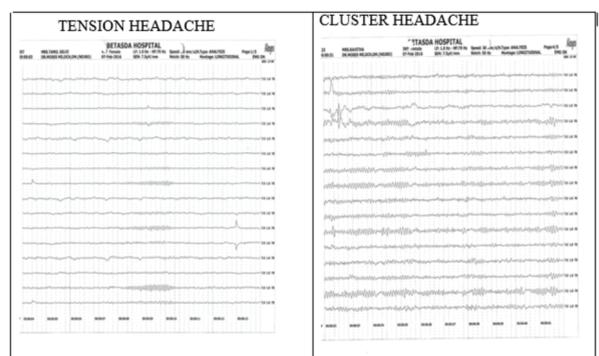
Electroencephalography is the electro physiological method of monitoring the electrical activity of the brain using scalp electrodes. It is used to diagnose epilepsy, sleep disorders, coma, encephalopathy, stroke, tumors and brain death.

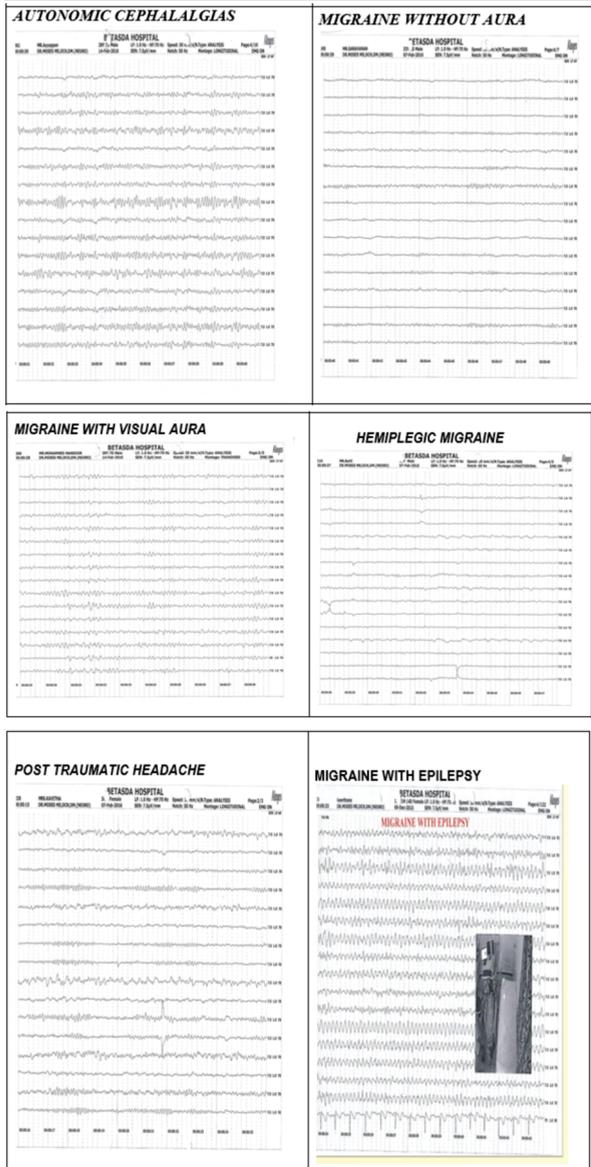
EEG is used in headache patients with neurological signs, basilar migraine and headache with epilepsy.

Here we studied about the role of electroencephalography in headache disorders.

Role of EEG in Primary headache is analyzed. Type of headache is diagnosed using diagnostic criteria of international classification of headache disorders ICHD -3rd edition, Beta version.

### EEG RECORDING





Migraine patients had statistically significant normal EEG. Tension headache patients had statistically significant normal EEG. Cluster headache and other Autonomic Cephalalgia patients had statistically significant normal EEG. <sup>1,2,4,5</sup>

Secondary headache patients had slow waves, sharp waves, spike and wave form according to the underlying etiology. <sup>3,6,7</sup>

**CONCLUSION**

EEG is predominantly normal in primary headache. Secondary cause of headache has to be excluded in headache patients with EEG changes.

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