

MRI showing signal changes in midbrain with no features of infarct. Considering the possibility of demyelination Visual evoked potentials was done which was not suggestive of it. Patient had spontaneous improvement in 1 week after a short course of steroids. The probable explanation for transient internuclear ophthalmoplegia may be due to vasospasm of perforators supplying pons and caudal mesencephalon which is a possibility if pia is breached during posterior dissection of hippocampus or injury to any small vessel which was not noticeable during the surgery.

We should be aware of such complication for better counselling and prognostication.

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Demographics of epilepsy and antiepileptic drugs utilization in India: Results of an observational study



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Objective: To understand demographic profile and treatment modalities and co-morbidities in patients with epilepsy.

Material and methods: A cross-sectional, observational, non-interventional study was conducted among adult Indian patients with epilepsy. Demographic information, epilepsy type, seizure control, seizure freedom with current therapy, comorbid conditions and usage pattern of antiepileptic agents (AED) according to age group and gender were recorded. Safety was assessed by recording adverse drug reactions.

Results: The study included 973 patients (females 38.7%) with mean age of 35.6 years. Only 3.56% patients were not educated while 45.31% patients were employed. Only 1.2% patients had history of brain injury. The mean frequency of seizures during previous six months was 24.0 (± 4.12) while the mean duration of epilepsy was 5.8 (± 5.78) years. EEG was the most common (59.7%) investigation modality. A total of 109 (11.2%) patients had comorbid medical illness among which hypertension was seen in 29.36% patients. Levetiracetam was used in 583 (59.9%) patients while valproate, clobazam, and phenytoin were used in 16.3%, 14.8% and 13.6% patients respectively. Effectiveness and safety/tolerability profile were two most important considerations for selecting AED. A total of 924 (95.00%) had seizure control with during previous six months while mean seizure free interval was 7.1 (± 4.09) months. Levetiracetam was used in 34.92%, 45.73% and 61.11% patients and valproate in 15.16%, 10.85% and 4.55% patients in the age group of 18–30, 31–50 and 51–75 years respectively. Levetiracetam was used in 57.72% and 63.40% while valproate was used in 18.96% and 11.67% male and female patients respectively. Adverse event rate was only 0.1%.

Conclusion: Epilepsy is common in adult patients. Hypertension is the most common comorbidity. Levetiracetam is the most commonly used AED across all studied age groups and in both genders. Control of epilepsy with current treatment is satisfactory with no major adverse events.

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Global Campaign against Epilepsy – The present international action



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The presentation describes two great events in the field of prevention and control of epilepsy internationally, i.e. the Global Campaign against Epilepsy (GCAE) in 1996 and the WHA68.20 Resolution approved by the 68th World Health Assembly (WHA) in 2015.

During the last two decades, the GCAE has successfully implemented in several low- and middle-income countries. A number of cases of good practice are showed and those made the motivation and basis for a WHO resolution specially for epilepsy passed through by the 68th WHA recently.

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Seizure outcome following primary motor cortex-sparing resective surgery for perirolandic focal cortical dysplasia



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Objectives: We present a case series of patients who underwent perirolandic resection for medically refractory focal epilepsy and histological evidence of focal cortical dysplasia. Our aim was to specifically evaluate the outcome of a surgical strategy intended for seizure freedom while preserving primary motor cortex function.

Materials and methods: Thirteen patients undergoing perirolandic resections for pharmacoresistant focal epilepsy between 2010 and 2015 who demonstrated histological evidence of focal cortical dysplasia were selected from a prospectively maintained database. Presurgical evaluation included video EEG telemetry and 3T MRI brain for all patients. Eight patients underwent interictal FDG PET scan. Intracranial EEG monitoring was done for 8 patients, six by conventional subdural grids and depths and two by SEEG technique. Additional techniques included extraoperative cortical stimulation mapping, intraoperative electrocorticography (ECoG), intraoperative motor cortex mapping and awake surgery in various combinations. In all cases (lesional and nonlesional), resection was intentionally limited for anatomic preservation of the primary motor cortex.

Results: Amongst the thirteen patients with age ranging 14-44 years (mean 26.8 ± 9.2) 62% of them had daily seizures. MRI abnormalities were identified in 8 patients (62%), PET showed concordant findings in 7 patients (88%). When utilized, the mean duration of intracranial EEG recordings was 8.0 ± 7.2 days (range 2-23 days). All patients underwent a primary motor cortex-sparing resection of the suspected epileptogenic cortex. The mean postoperative follow up period was 23.2 months (range 8-62 months). Twelve out of 13 (92%) were seizure free (Engel 1a) outcome at the last follow-up assessment; one patient with Engel 2a outcome at 28 months. Six patients (46%) had immediate new focal neurological deficits, however all six patients had recovered completely within three months.

Conclusion: The surgical strategy of a primary motor cortex-sparing resective surgery for perirolandic FCD is associated with an excellent early seizure-freedom rate and no permanent neurological deficits. Since the ultimate goal of resective epilepsy surgery is seizure freedom with simultaneous functional preservation, similar long term outcome studies should ultimately guide the resection strategy.

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Endogenous kynurenic acid, a tryptophan metabolite, synthesis is altered in resected brain specimens obtained from patients with mesial temporal lobe epilepsy



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Mesial temporal lobe epilepsy (MTLE) is the most common form of drug-resistant epilepsy where hippocampus is responsible for unprovoked seizures. The hallmark of MTLE is enhanced glutamatergic excitatory neurotransmission. Kynurenic acid (KYNA), a tryptophan metabolite, is a specific inhibitor for NMDA type glutamate receptor. Animal and human epilepsy models have documented that concentration of KYNA and kynurenic pathway metabolites are altered in brain. Alteration in synthesis of endogenous KYNA may provide an insight in understanding of hyper activation of glutamate receptors in MTLE. Resected hippocampus tissues were obtained from MTLE patients. Slices ($350 \mu\text{m}$) were prepared and incubated with $100 \mu\text{M}$ kynurenic containing artificial cerebrospinal fluid (ACSF) for 2 h at 30°C . KYNA was estimated using HPLC with dual wavelength fluorescent detection system. We observe that endogenous production of KYNA was significantly less in MTLE tissues ($0.06433 \mu\text{g}/\mu\text{l} \pm 0.019918$) compared to non-epileptic controls ($1.91995 \mu\text{g}/\mu\text{l} \pm 0.63759$). The result of present study suggests that decreased endogenous KYNA production could be a reason for hyperactive glutamatergic neurotransmission and

targeting this pathway could act as a potential therapeutic target for MTLE.

Purpose: MTLE is the most common form of drug-resistant epilepsy where hippocampus is responsible for unprovoked seizures. The hallmark of MTLE is enhanced glutamatergic excitatory neurotransmission. Kynurenic acid (KYNA), a tryptophan metabolite, is a specific inhibitor for NMDA type glutamate receptor. It is synthesised and released from cortical astrocytes. In animal models of epilepsy and in human tuberous sclerosis complex it has been shown that concentration of KYNA and kynurenic pathway metabolites are altered in brain. Alteration in synthesis of endogenous kynurenic acid may provide an insight in understanding of hyper activation of glutamate receptors in MTLE.

Methods: Hippocampal tissue from drug resistant MTLE patients and tissues resected from the tumour margin during brain tumour surgery of seizure-free patients as non-epileptic control specimens were used for the study. Three hundred fifty micrometre thick slices were prepared from the tissues, followed by they were incubated with $100 \mu\text{M}$ kynurenic containing artificial cerebrospinal fluid (ACSF) for 2 h at 30°C (Rozsa et al., 2008). Following incubation, the solutions were stored at -80°C . KYNA was estimated using HPLC with dual wavelength fluorescent detection system (excitation 344 nm emission 404 nm) (Xiao et al., 2008).

Result and conclusion: Altered excitatory synaptic transmission is one of the primary causes of seizure generation in patients with mesial temporal lobe epilepsy (MTLE). The present study is designed to delineate the contribution of glutamatergic tone under resting conditions to the hyper excitability in patients with MTLE. Resected hippocampal tissues were obtained from patients with MTLE. In these samples spontaneous excitatory postsynaptic currents (EPSCs), sensitive to NMDA receptor antagonist APV ($50 \mu\text{M}$) and AMPA receptor antagonist CNQX ($10 \mu\text{M}$) were recorded from pyramidal neurons at -70mV . We observed that frequency of EPSCs were 28.2% higher in slices obtained from patients with MTLE compared to that in case of non-epileptic controls. We also examined spontaneous fast current transients (CTs) recorded from these pyramidal neurons under cell-attached configuration. The frequency of CTs increased in the absence of extracellular Mg^{2+} in brain slice preparations and was completely blocked by APV. We found that the frequency of CTs in pyramidal neurons were higher in case of MTLE samples compared to non-epileptic controls. This study suggests that enhanced endogenous activity of NMDA receptor contributes to excitability in pyramidal neurons of slice preparations obtained from patients with MTLE.

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