investigate evidence of focal dipole clustering in patients who happened to have seizures during MEG acquisitions.

Objective:

(1) To compare the source localization results of ictal and inter-ictal MEG studies.
(2) To evaluate the efficacy of MEG results, both Inter-ictal and Ictal with scalp video EEG And MRI findings.

Methods: We analysed prospectively average 2 h inter-ictal MEG data of PWE acquisition with equivalent current dipole (ECD) model with both DANA and CURRY analysis softwares, of the patients with DRE referred to MEG Facility of AIIMS-NBRC Center of Excellence Epilepsy (COE) for MEG assessment. The inter-ictal and ictal MEG was analysed in DANA as well as CURRY by different technologists and epileptologists blinded to each other's results.

Results: 30 out of 310 patients having drug refractory epilepsy who underwent MEG study (Elekta Neuromag® TRIUX™ 306 Channel) had seizures during acquisition. Most seizures were focal (25), however 5 patients had secondarily generalized seizures. Their inter-ictal data analysis showed preliminary abnormal findings in the form of either spikes, sharps or slow waves. Inter-ictal source analysis made with equivalent current dipole model showed focal clustering in 24/30 patients who got convulsions during acquisition. Ictal finding were concordant with the MRI in 85% of those with an abnormal MRI substrate. In those with a substrate negative MRI (9) ictal MEG was concordant with the ictal onset zone on scalp EEG in 56%. In these a repeat MEG done in 2 was again consistent to that of the previous MEG cluster. Interictal and ictal MEG were convergent in their clusters to about 68%.

Findings:

Total no. of patients	310
No of patients who got convulsions	30
No of patients with focal clustering of interictal discharges	24/30
No of patients who got secondary generalized seizures	5
Abnormal MRI	21/30
Ictal finding concordant with MRI findings	18/21 (85%)
Ictal finding concordant with Interictal EEG findings	17/30 (56%)
No. of MEG clustering consistent with repeat MEG	2/2 (100%)
Interictal and Ictal MEG convergence	14/21 (68%)

Conclusion: This ictal analysis study in PWE who are drug refractory and happen to have seizures during acquisitions, have evidence to show that focal clustering region corresponds to the same area as indicated by the other complimentary tests.

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Specific indicators of diffusion weighted magnetic resonance imaging in child cerebral palsy with symptomatic epilepsy

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Purpose of the study: To determine the characteristics of diffusion weighted magnetic resonance imaging indicators in children with symptomatic epilepsy with cerebral palsy.

Materials and methods: The study was based on the results of the study 54 children with symptomatic epilepsy with cerebral palsy aged 1–11 years. All patients underwent standard clinical and neurological examination, with the inclusion of routine MRI. All of 54 studied children underwent routine magnetic resonance imaging with diffusion weighted sequence. Main group consisted of 26 epilepsy patients with cerebral palsy. The control group consisted of 20 children without clinical manifestations of epilepsy and no signs of seizure activity on EEG. FA (fractional anisotropy), values and MD (mean diffusion) were calculated on the same sections for all the resulting images.

The results of the study: In the study these children with symptomatic epilepsy on the background of cerebral palsy we found a significant decrease in the FA values in fronto-temporal areas ($P < 0.01$). In other areas studied FA values were within the normative range To evaluate the results of MRI diffusion is used as indicator of the mean diffusion (MD), an increase of values is associated with a defect in neurogenesis or loss of cells, followed by an increase in the extracellular space. In children with symptomatic epilepsy cerebral palsy was observed the significant increase the MD values in all studied areas ($P < 0.01$).

Conclusion: The obtained results prove that diffusion weighted MRI in children with symptomatic epilepsy and cerebral palsy reveals the structural changes of white matter of brain. A significant increase of diffusion capacity of the brain due to lower fractional anisotropy in the fronto-temporal lobe, indicates the permeability and damage of the myelin sheath in white matter.

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Seizure and insular gliomas

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Background: Insular gliomas are complex and present a great challenge as far as their management is concerned. Most insular gliomas present with seizures and control of seizures is an important goal of treatment. The aim of this paper was to highlight the different seizure semiologies presented by insular glioma and their short term outcome to the treatment.

Methods: 13 patients (Mean age 36 years, M:F = 9:4) with insular gliomas presenting with seizures were analyzed for clinical presentation, radiological features, treatments received and seizure outcome (Engel's grade).

Results: Complex partial seizures ($n = 8$) was the most common semiology with olfactory aura found in 5 of them. Left sided lesions were encountered in 7 patients while 6 patients had right-sided lesions. 7 patients had non-enhancing lesions, 5 patients showed patchy enhancement while 1 patient had strong however heterogenous enhancement of the tumor. 8 patients had tumour in insula with nearly equal extension into frontal and temporal operculum while remaining five patients had tumor in insula with extension in to one of the two lobes. 9 patients underwent subtotal excision as against 4 patients with near total excision. Postoperative complication included hemiplegia in one and speech abnormalities in two patients. Most common histology was grade 2 astrocytomas ($n = 5$) followed by grade 2 ologodendrogliomas ($n = 3$). At a mean follow-up of 10.7 months, 11 patients had Engel 1 seizure control, 1 had Engel 2 control while persistent seizures (Engel 4) was present in only one patient.

Conclusion: Insular gliomas present with complex partial seizures with olfactory aura. Majority of the gliomas are WHO grade 2 astrocytomas and oligodendrogliomas. Judicious surgery combined with adjuvant therapy may provide excellent seizure control with acceptable morbidity.

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Precise epileptogenic zone location with stereotactic electroencephalography navigated by ROSA in patients with focal cortical dyplasia in children

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Objective: To evaluate the application of robotized stereotactic assistant (ROSA) navigated intracranial electrode implantation in precise epileptogenic zone localization. To evaluate the location capability on epileptogenic foci (EF) of stereotactic electroencephalography (SEEG) in patients with intractable symptomatic epilepsy (PISE) in children caused by focal cortical dysplasia.

Method: The data of 15 patients with drug-resistant epilepsy in Capital Medical University Sanbo Brain Hospital from March 2012 to September 2014 who underwent ROSA navigated intracranial electrode implantation, and after resection operation confirmed by pathology with foca cortical dysplasia. We retrospectively analyzed the clinical data of PISE under 14 receiving resective surgery after epileptogenic foci located by SEEG, including age at surgery, age of onset, course of epilepsy, type of seizures, medication, video electroencephalography (vEEG) and MRI pattern, surgery data, pathology and seizure remission after surgery.

Results: 5 PISE were included in our analysis, 10 male and 5 female, with ages at surgery of 4 years to 14 years, ages of onset of 20 days to 11 years, and epilepsy course of 2 years to 22 years, all medically intractable. Two patients showed a normal MRI finding, 4 with obvious MRI findings, 9 with obscure finding, and all with a discordant vEEG pattern. SEEG located EF on frontal lobe in 5 PISE, temporal in 2, central in 1, insular in 1, multiple foci in 5, and multiple lobes in 1. All foci located by SEEG were resected with surgery, and all patients were acquire effective followed-up, from 8 to 36 months. In the 15 patient's follow-up, 10 achieved Engel class I, 3 class II, 1 class III, and 1 class IV. All patients with postoperative pathology were all focal cortical dysplasia, 2 patients FCDIA, 3 patients FCDIB, 6 patients FCDIIA, 4 patients FCDIIB.

Conclusion: For intractable epilepsy in children, focal cortical dysplasia is the most common pathogeny, when non-invasive assessment could not find the epileptogenic foci, SEEG is an effective pre surgical assessment method for PISE with discordant findings of other preoperative examination, especially the ROSA navigated sterotactic electrode implantation. Which was a microinvasive, short time, less-complication, safe-guaranteed and precise technique.

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Indications and diagnostic yield of emergency electroencephalography (EEEG) in an "era" of electrical status epilepticus

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Introduction: The electroencephalogram (EEG) is a unique and valuable measure of the brain's electrical function. The use of EEG in emergent conditions has been boosted with the definition of electrical status epilepticus (ESE), however the precise role and value of EEG in emergent conditions have yet to be clearly defined. Therefore, our objective was to determine the indications and the yield of EEG in an emergency setup.

Method: A descriptive cross sectional study, 20 min standard digital EEGs (10–20 system) were performed. Individual bias was minimized by independent reporting done by two. Authors retrospectively reviewed the reports of eEEGs performed over a period of 12 months.

Results: A total number of 1028 were performed, out of which 166 (16.1%) through emergent requests, nullified 11 due to inadequate information. The mean age of eEEG was 22.0 years, no significant difference compared to routine-EEG (rEEG), Sex-male 57.8% for eEEG, 48.2% for rEEG ($p < 0.05$). The commonest clinical indication for eEEGs was altered level of consciousness 78 (46.9%). None suspected ESE on clinical grounds. The sensitivity of eEEGs for positive yield was 27.1%. Twenty-one had inter-ictal-epiletiform discharges (14 = focal), 16 had background slowing (12 = diffuse), only 4 had ESE (diffuse discharges). Moreover, 2 had burst-suppression, 1 spindle-coma and 1 periodic-lateralized-epileptiform-discharge. Majority (68.2%) with reduced level of consciousness had background slowing; only 1 had ESE.

There was no significant difference between the sensitivity of eEEG versus rEEG ($p > 0.05$).