A003: Electroclinical Predictors of Cognitive and Seizure Outcome in Children with Epileptic Encephalopathy Due to Electrical Status Epilepticus in Sleep (ESES)

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Background: Epileptic encephalopathy (EE), associated with ESES, with its associated impact on cognition and language, is an important cause of morbidity in children. The effects of various treatment modalities and the factors affecting treatment response are not fully understood.

Methods: Case records of patients admitted in the institute and diagnosed to have EE with ESES pattern on EEG were accessed. Spike and wave index (SWI) was calculated from sleep records. Language development was assessed using Receptive-Expressive Emergent Language Scale and seizure outcome using the modified Engel seizure score.

Results: Fifty-two children with age ranging from 1 to 19 years were included (idiopathic ESES, n = 19 and symptomatic ESES with pre-existing developmental delay and/or structural brain lesions, n = 33). The two groups differed in terms of younger age at seizure onset in symptomatic ESES (p = 0.006), early age at language regression (p = 0.046), history of neonatal seizures (p = 0.038) and slowing of background on EEG (p = 0.024). Language regression was noted in 63.5% of the cohort. Twenty-five (48%) patients received steroids alone and showed improvement in seizure ($p \leq 0.001$) and language outcomes at 1 year (p = 0.021), while 21 (40.3%) received steroids + IVIgG and showed improvement in seizure outcome (p = 0.002) at 1 year. On 1- year follow-up, seizure remission was noted in 13 (25%) patients with improvement in seizure score in 32/39 (82%) patients and language improvement in 60.8%. Patients with normal background on EEG (p = 0.03), generalized spikes (p = 0.05), no Fz negative spikes (p = 0.01), and SWI < 1.70 (p = 0.004) were found to have favorable cognitive outcomes on follow-up. 31/45 (68.9%) patients had persistent ESES at 1-year follow-up.

Conclusion: Despite clinical differences, idiopathic and symptomatic ESES have similar response to intervention. Addition of IVIgG to steroids improve seizure outcome, but may not have an impact on cognitive outcome, which is determined by EEG variables.

A004: An Ethnographic and Structured Assessment of Treatment-Seeking Attitudes and Behaviors of People with Epilepsy in the Community

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Introduction: Many people with epilepsy do not accept to the treatment. The reasons for this are not studied.

Aims: To explore factors associated with failure to access available health care treatments by people with epilepsy in an impoverished community in India.

Methods: We reached out to 143 people who were screened positive for epilepsy in door-to-door survey of 60,000 people; their sociodemographic character, outcome, and current status with 240 people who agreed to accept treatment. This was compiled by a structured as well as ethnographic assessment of attitudes of both groups.

Results: Of 143 patients, 29 had relocated, 25 were contacted by individual for assessment, and nine had died over 12 months. Epilepsy was confirmed in 48 (33.57%). Nonenrolled subjects were more likely to be ethnic Punjabi (p = 0.0001), unemployed (p = 0.020), had income < Rs. 5,386 (p = 0.006). In multivariate analysis, ethnic origin, family income, and other socio- economic status were completely associated with treatment acceptance; verbal autopsy findings on the nine people who died will be presented.

Conclusion: People with epilepsy who do not accept treatment are more likely to be of ethnic origin and from lower income strata. Failure to accept treatment is associated with high mortality.

A005: Expression Profile of Histone Deacetylases in Patients with Hippocampal Sclerosis

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Introduction: Epigenetic mechanisms like altered histone acetylation may have a crucial role in epileptogenesis. Altered histone H3 and H4 acetylation has been demonstrated in experimental models of temporal lobe epilepsy (TLE). Epigenetic histone deacetylation inhibition prevents the development and persistence of TLE in animal models. This study was designed to investigate the changes in the expression of the histone deacetylases (HDACs) in the surgically resected tissue specimens of hippocampal sclerosis (HS) patients with the aim to decipher its role in epileptogenesis.

Methods: For this study, surgically resected tissue specimens of 23 patients were obtained. We have used histopathologically normal hippocampus tissues (17) obtained from the postmortem cases without any history of seizures or other neurological disorders as nonepileptic controls. mRNA levels of HDACs were evaluated by quantitative real-time PCR. HDAC activity and the levels of significantly altered HDACs were measured spectrophotometrically.

Results: A significant increase in mRNA level of HDAC1 (9.02 ± 2.97 fold, p = 0.029), HDAC4 (4.17 ± 1.23 fold, p = 0.046), HDAC5 (7.05 ± 2.40 fold, p = 0.036), HDAC6 (9.35 ± 2.35 fold, p = 0.017), HDAC10 (9.02 ± 2.97 fold, p = 0.021), and

HDAC11 (4.10 ± 1.33 fold, $p = 0.043$) expression was observed in HS as compared with control. We did not observe any significant changes in the HDAC2, HDAC3, HDAC7, HDAC8, and HDAC9 levels in MTLE-HS when compared with control.

Conclusion: This is the first comprehensive study that demonstrated the significant changes in various HDACs in HS patients, providing a rationale for conducting further exploratory studies.

A006: An Evaluation of Factors Influencing Adherence to Antiepileptic Medications (AEDs): A Cross-sectional Hospital-Based Study—An Overview and Recommendations to Improve

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Objective: Long-term treatment by antiepileptic drugs (AEDs) is vital for effective control of seizures in patients with epilepsy (*p*WE). The present study was performed to measure extent and factors influencing adherence to AEDs.

Methods: The present study was a prospective, cross-sectional study, involving PWE reporting at a tertiary care hospital. The extent of adherence to AEDs was measured using Morisky Medication Adherence Scale (MMAS). Data from 451 patients with confirmed diagnosis of epilepsy were subjected to univariate analysis using Chi-square test to observe association between AED adherence and different variables. Further the predictors of adherence were analyzed using binary regression analysis.

Results: There were 251 (55.7%) male and 198 (43.9%) female PWE. The extent of adherence to AEDs was high among 326 (72.3%) and low in 125 (27.7%). The socioeconomic status ($p = 0.043$) and type of epilepsy ($p = 0.033$) were found to be significantly associated with AED adherence. However, no significant difference was observed between adherence and age, gender, marital status, epilepsy duration, number, and type of AEDs, and occurrence of adverse drug reactions. Patients with focal epilepsy and those from the middle/lower to middle socioeconomic classes were less likely to be nonadherent. The primary reason for nonadherence was forgetfulness.

Conclusion: Forgetfulness was a primary preventive factor for AED nonadherence. We recommend methods to improve the same using multiple measures to maximize adherence and minimize development of pharmaco-resistance to AEDs in PWE.

A007: Third Generation Cardioselective Beta Blocker Exhibits Significant Anticonvulsant Properties in Pentylenetetrazole Model in Wistar Albino Rats

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Objective: To evaluate the anticonvulsant properties of nebivolol in Wistar albino rats by pentylenetetrazole (*p*TZ) model.

Methods: The research protocol was approved by the Institutional Animal Ethics Committee (IAEC). Standard GLP and CPCSEA guidelines were adhered throughout the study period. Healthy adult Wistar albino rats of either sex weighing between 180 and 250 g were selected as per the study protocol and the animals were procured from the central animal house of the institution. The animals were housed in the experimental laboratory for 7 days. The animals were randomly divided into control, standard, and test groups with six animals in each group. Group-I: control (equivalent volume of normal saline, i.p.), group-II: sodium valproate (150 mg/Kg BW, i.p.), group-III: nebivolol (5 mg/kg BW, i.p.). Anticonvulsant activity in Wistar albino rats was assessed by PTZ model. The data were expressed as mean ± SE. One-way ANOVA followed by Bonferroni's post hoc test was used to find the statistical significance among study groups.

Results: The standard drug (sodium valproate) showed significant reduction in onset of seizures (time in seconds), duration of seizures (time in seconds), and number of seizures (in 1 hour) when compared with the control group ($p < 0.01$). Nebivolol also showed significant reduction in onset, duration, and number of seizures when compared with group I (control) with p-value less than 0.05.

Conclusion: Nebivolol possesses significant anticonvulsant properties in PTZ model in Wistar albino rats.

A008: Na+-K+-2Cl$^-$ Cotransport Inhibitors and their Effect on Induced Seizure Tests in Experimental Models

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Objective: To evaluate the antiseizure activities of Na+-K+-2Cl– cotransport inhibitors in chemically and electrically induced seizure test models in Wistar albino rats.

Methods: The study protocol was approved from the Institutional Animal Ethics Committee (IAEC). All animal ethics guidelines (CPCSEA and INSA) were followed throughout the study period. In this study, two screening test models were used one with chemically induced (*p*TZ) and another with the electrically induced (MES) on healthy, adult Wistar albino rats. The groups of study included, group I: control for PTZ, group II: standard for PTZ (Sodium valproate, i.p.), group III: furosemide for PTZ (i.p.), group IV: torsemide for PTZ (i.p.), group V: control for MES, group VI: standard for MES (diphenylhydantoin, i.p.), group VII: furosemide for MES (i.p.), and group VIII: torasemide for MES (i.p.). One-way ANOVA followed by Bonferroni's post hoc test was used for analysis of data. p-Value of less than 0.05 was considered as statistically significant.

Results: This study found that there was a reduction in total duration of seizures in seconds in both the experimental test drug groups (furosemide and torasemide), that is, groups III and IV, respectively, in comparison to the control group I with $p < 0.05$. It was also found that there was decline in scores of seizures and total number of seizures in one hour in both the experiential test drug groups III and IV when compared with the group I ($p < 0.01$). The statistically significant