analysis of the RNAseq data revealed 56 significantly regulated genes in MTLE patients and showed that many of these belong to a cohesive network of physically interacting proteins linked to several cellular functions. This study identified various genes like FN1 which is central in our analysis, NEUROD6, RELN, TGFβR2, NLRP1, SCRT1, CSNK2B, SCN1B, CABP1, KIF5A and antisense RNAs like AQP4-AS1 and KIRREL3-AS2 that needs further evaluation for their potential as diagnostic/prognostic biomarkers in intractable MTLE.

Differential modulation of various inflammatory mediators in mesial temporal lobe epilepsy and focal cortical dysplasia patients

Aparna Banerjee Dixit[1], Debasmita Paul[2], Arpna Srivastava[2], Jyotirmoy Banerjee[1], Manjari Tripathi[3], P. Sarat Chandra[2]

[1] Center for Excellence in Epilepsy, A Joint NBRC-AIIMS Collaboration, NBRC, Manesar, India
[2] Department of Neurosurgery, AIIMS, New Delhi, India
[3] Department of Neurology, AIIMS, New Delhi, India

Introduction: Neuroinflammation and innate immunity play important role in the pathogenesis of epilepsy. Cytokines and chemokines induced inflammation may lead to a disturbance of the glutamatergic system, and subsequently to the persistence of seizures by chronic neuronal over excitation. Numerous candidate gene specific studies have postulated the role of inflammatory and immune modulators in neuronal death and/or development of pharmacoresistance in MTLE-HS however there are not many reports in FCD. Therefore, in this study we have used a multiplex immunoassay approach to measure multiple inflammatory mediators (cytokines, chemokines and growth factors) which includes IL1β, IL1Ra, IL6, IL10, MIP1A (CCL3), MIP1B (CCL4) and TNFα in brain tissues resected from MTLE and FCD patients.

Methods: Tissue samples collected from MTLE, FCD and tumor periphery of glioma patients (non-epileptic controls) were assessed by quantitative cytokine assays using a customized Bioplex™ Pro-human cytokine 8-plex panel kit. Scattered plots were generated using SigmaPlot version 13.

Results and conclusion: Analysis of FCD tissue highlighted differences with MTLE. Upregulation of IL-1β, IL-1Ra, IL-6, MIP-1α and MIP-1β were observed in both MTLE and FCD patients as compared to controls. Except IL-1β, upregulation was relatively higher in FCD. IL-10 showed down regulation in both, MTLE and FCD as compared to controls. TNF-α did not show any significant change between groups. Our results are in line with data from mRNA profiling studies on human epileptic tissues. The mechanism and clinical implications of these epilepsy-related immune alterations need to be clarified in a larger cohort of patients with a goal of developing potential anti-epileptic treatment strategies.

Gamma knife versus open surgery for epilepsy: A longitudinal neuropsychological profiling study

Ashima Nehra[1], Swati Bajpai[1], S.S. Kale[2], P.S. Chandra[2], Manjari Tripathi[3], Achal Srivastava[3], Gopishankar[4]

[1] Clinical Neuropsychology, Neurosciences Center, AIIMS, New Delhi, India
[2] Neurosurgery, Neurosciences Center, AIIMS, New Delhi, India
[3] Neurology, Neurosciences Center, AIIMS, New Delhi, India
[4] Gamma Knife, Neurosciences Center, AIIMS, New Delhi, India

Introduction: Neuropsychological evaluations of preoperative epilepsy surgical candidates have been a routine portion of the multidisciplinary evaluation at most epilepsy centres for decades, hence, it is a laid fact that neuropsychology has played a prominent role throughout the modern era of epilepsy surgery. It has been explored as a means to predict and identify postoperative cognitive deficits after resections (chiefly temporal lobe), and in numerically quantifying those changes that do occur. In addition, neuropsychological results have some predicative power regarding seizure outcome following anterior temporal lobotomy.

Aim: To compare the neuropsychological outcomes in patients with pharmaco-resistant mesial temporal lobe epilepsy undergoing radio surgery and temporal lobe surgery, in particular with respect to verbal memory, visuo-constructive ability, attention and new learning ability function for language-dominant hemisphere treated patients along with psychosocial intervention.

Methods: A sample of 6 randomized consenting subjects were assessed longitudinally on standardized neuropsychological tests namely, verbal memory and learning (AVLT), visuo-constructive memory (CFT), new learning ability (PGI-MS, subtest-8), attention (colour trail 1 and 2), depression (BDI) and anxiety (BAI) from baseline to the 36 month assessment (4 follow-ups annually during the 3 year period).

Result: Descriptive statistical analysis shows that there was no statistical significant difference between the groups; i.e the type of epilepsy surgery (radio surgery or temporal lobe surgery) does not affect neuropsychological profile. While there was improved neuropsychological profile more in temporal lobe surgery group than in radio-surgery group over 3 year assessment. Temporal lobe surgery group has improved visuo-constructive ability (8.3 ± 3.8; 15.6 ± 7.4; 28.3 ± 20.8; 30.0 ± 31.2), learning ability (25.8 ± 29.8; 34.1 ± 39.8; 35.8 ± 31.6; 57.5 ± 44.2), delayed memory (15 ± 13.2; 23.3 ± 23.6; 25.0 ± 22.9; 21.6 ± 24.6), attention(43.3 ± 29.1; 77.0 ± 28.2; 58.2 ± 71.0; 84.3 ± 81.0) along with reduced depression and anxiety respectively over 3 year period of time, as compared to radio surgery group where only visuo constructive ability(10.0 ± 4.3; 14.2 ± 7.6; 30.0 ± 2.5; 43.3 ± 10.4) and new learning ability (70 ± 20; 83 ± 11; 90 ± 0; 90 ± 0) was found be improved.

Conclusion: Neuropsychological testing is useful as a means of prediction and risk stratification for postoperative