

## **Role Of Pre-Surgical “Non-Invasive” Multi-Modality Evaluation In Children With Focal Cortical Dysplasia Undergoing Epilepsy Surgery: Results Of Long-Term Seizure Outcome**

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### **Background:**

In children with intractable epilepsy due to focal cortical dysplasia (FCD) (diagnosed by histopathological examination) undergoing epilepsy surgery using invasive subdural grid electrodes and stereo electro-encephalogram (EEG), the reported favorable seizure outcome is 50%. We evaluated the role of non-invasive multi-modality pre-surgical evaluation in determining seizure outcome in children below 16 years with intractable epilepsy due to FCD.

### **Methods:**

We analysed clinical and demographic data, localisation of epileptogenic focus on presurgical MRI, fluoro-deoxy-glucose positron emission tomography (FDG-PET), ictal single photon emission computed tomography (SPECT) and seizure outcome in 104 consecutive children at two years after epilepsy surgery. Seizure outcome was classified according to the Engel classification.

### **Results:**

Clear cut lesion on magnetic resonance imaging (MRI) was observed in 92(88.5%) children and showed a trend of associated with favourable outcome (73.9% vs 41.6%; $p=0.09$ ). In the remaining 12 children with subtle MRI, localization in FDG-PET helped opt for surgery in eight(66.7%) and ictal SPECT in four(33.7%) more. All children with clear cut lesion on MRI or localized pattern on PET or ictal SPECT had favourable outcome. Amongst the 12 children with subtle MRI, favourable outcome was observed in five(41.6%).

### **Conclusion:**

Pre-operative non-invasive multi-modality evaluation achieves seizure outcome similar to invasive EEG evaluation in children with FCD undergoing epilepsy surgery. Importantly, our findings may obviate the need for expensive invasive EEG recordings in countries with limited resources.