Service Priorities and Programmes

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To Improve Effectivness of Seizure Control in Paediatric Refractory Epilepsy Using Advanced Neurophysiology, Brain Imaging, Surgical Technology and Dietary Treatment

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Introduction

Around 30% of Paediatric Epilepsy couldn't be controlled by anti-epileptic drugs. According to recent ILAE classification of epilepsy, epilepsies is a heterogeneous disease with different underlying etiologies. Management according to underlying etiologies could improve seizure outcome. According to international recommendation, children and adolescent with seizure that are uncontolled by medical treatment intic0 or are disabling are possible candidates for epilepsy surgery and should be referred for pre-surgical evaluation and Ketogenic diet and Vagal Nerve Stimulator is the treatment option for those not suitable for epilepsy surgery

Objectives

To improve effectiveness in seizure control in Paediatric Medical Refractory Epilepsy by multi-disciplinary team approach and using advanced medical,surgical technology and dietary treatment

Methodology

To pre-surgical evaluate Paediatric Refractory Epilepsy patients by advanced Neurophysiology include Long term Video EEG Monitoring, MRI, FMRI, DTI,Ictal SPECT, PET To offer genetic and metabolic test in selected patient To detail discuss each patient in Multi-disciplinary conferenceto find out underlying etiologies and offer appropriate treatment options: Resective Epilepsy Surgery with intra-operative Electrocorticography or those with focal structural lesion; For those not candidates for surgery offer VNS or KD.

Result

From 2001-Jan 2018, 900 refractory epilepsy children underwent comprehensive evaluation include: Long Term Video EEG and MRI Brain Imaging. 42 patients underwent resective epilepsy surgeries. Age for surgery: 0.8 -19 year; mean 10.6 years; follow up duration 0.1- 15 year mean 6.6year. Post-operative Seizure outcome: For Temporal lobe Surgery N=21, Engel I/Seizure free:81%; Engel II/almost Seizure free:5%; Engel III/worthwile improvement 9%; Engel IV/ No improvement 5%. For Extra-temporal Lobe Surgery N=14, Engel I/Seizure free 54%; Engel III/worthwile improvement 38%; Engel IV/ No improvement 8%. For Palliation, 6 patient underwent Vagal Nerve Stimulator Implantation; 3 patients > 50% seizure reduction, 3 patients had seizure had seizure no change. 3 patient underwent corpus Callosotomy for drop attack, 2 patient reduced drop attack; 1 patient no change 21 patient on Ketogenic diet/ Modified Atkin Diet age of starting 0.3 year- 11 year (mean: 4.8 year) Follow-up duration 0.2 year- 19 year (mean:32 months)3 14% patients (N=3) seizure free etiologies: Landau Kleffner Syndrome, Cortical Dysplasia, Congenital CMV Infection;33% patient(N=7)>75% seizure reduction etiologies: SSADH, HIE, Leigh's disease, 2 Neuro-metabolic disease, Familial Hemophagocytic Lymphohistocytosis,Influenza Encephalopathy; 24% patients (N=4)50-75% seizure reduction etiologies: Ohtahara's syndrome, Post-HSV encephalitic epilepsy, LGS, Symptomatic Generalised epilepsy; 29% patients (N=6)seizure no change etiologies: STXBP1, Lennox Gastaut Syndrome, 2 Cortical Dysplasia Epilepsy Surgery and Ketogenic Diet has showed to be effective in seizure control in Paediatric Refractory Epilepsy and our local result is compared with international standard