Developmental Delays; A Case Study

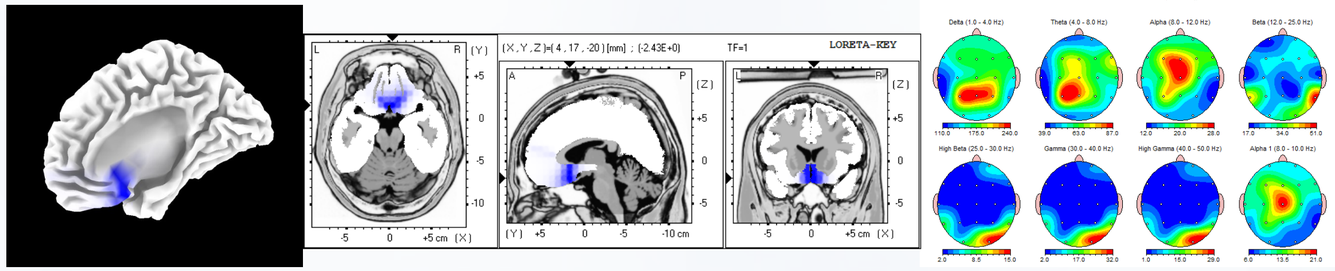
History.

Four year old female with delayed developmental milestones at age ten months sought the advice of a paediatrician where she was diagnosed with absence seizures from severe epilepsy with associated global developmental delay. She was then trialled on ten months of drug therapy consisting of ten different medications utill an appropriate response was found. The patient's seizure activity had been under control for approximately twelve months upon the patient's presentation to the Institute but the side effects from the medication had caused a slowing in cognitive processing and reduced coordination in the patient. The patient's past medical history was extensive with multiple investigations including fifteen EEGs, a lumbar puncture and two MRIs. Both MRIs required the patient to be anesthetised used to rule out serious pathology and brain damage. She also required surgery for grommets and removal of adenoids in 2010 and a tonsillectomy and adenoid and grommet replacement in 2011. The patient was taking Sabril and Vigabatrin at her presentation to the Institute. The primary reason for seeking treatment was the patient's learning difficulties which extended to poor speech, a lack of concentration and impulsive behaviour.

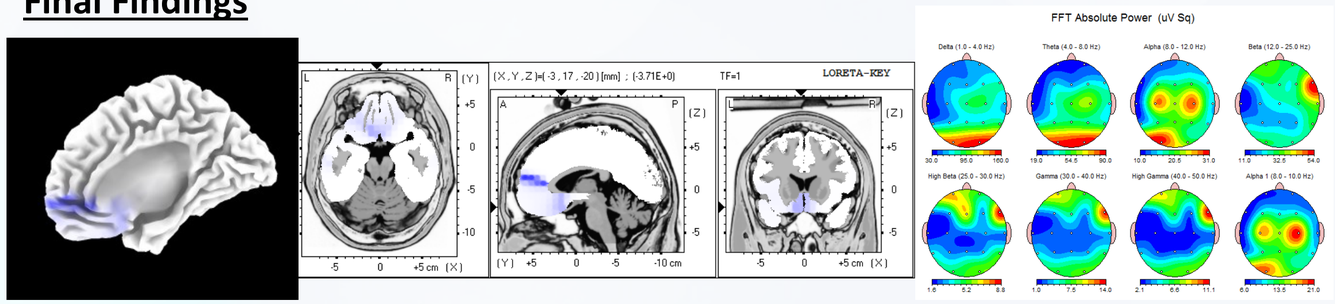
Physical Exam

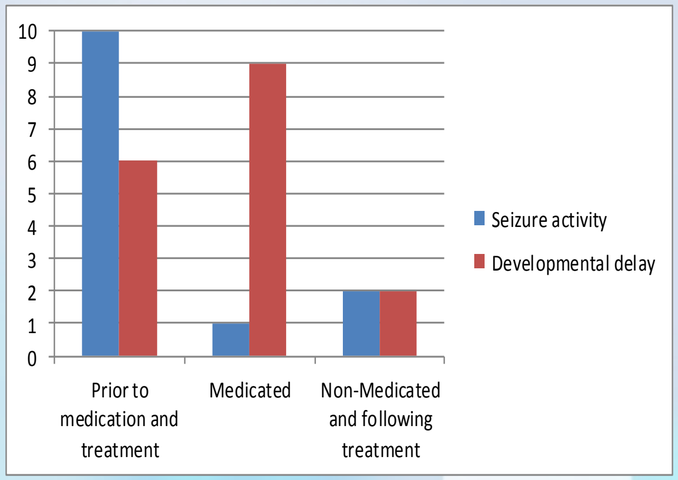
The physical examination including upper and lower neurological and cranial nerve testing was unremarkable. She showed a positive sign on the right Babinski reflex and a wide based gait with no arm swing.

Initial Findings



Final Findings





Institute of Functional Neuroscience

Dr Daniel Ward BSc.,BChiro., DACNB., MAAFN

Initial Findings:

Initial qEEG performed found that there was hyper-activity in the anterior and posterior cingulate gyri in the frequency ranges of alpha, delta and theta. Hypo-activity was also noted in the left frontal cortex in the beta and gamma frequencies, along with hypo-activity in the left and right parietal cortices in the frequencies of alpha, beta, delta and gamma. When using LORETA, we found that there was reduced activity in Brodmann areas 20, 38 and 47 on the left, areas 8 and 9 on the right and areas 25 and 11 on both the left and right. There was also increased activity noted in Brodmann areas 39 on the left, and areas 13, 22 and 37 on the right. The function of these areas play a role in thought, cognition, planning, forming vision, behaviour, controlling eye movements, hearing, smell and emotions.

Report Findings

The qEEG found that there was normalisation across all frequencies in the anterior and posterior cingulate gyri. There is also normalisation of the hypoactivity previously seen in the left frontal cortex, although still present in the alpha, delta and theta frequencies. There is normalisation of the right parietal cortices across all frequencies however there is still hypo-activity present in the left parietal cortices across all frequencies.

Conclusion

This patient has made significant improvements. Before treatment there were abnormalities noted on the medical EEG referred for by her paediatrician. On follow up medical EEG there were no abnormalities detected and was reported as normal. She is no longer taking Sabril and Vigabatrin. Her family has also seen improvements in her energy levels, play appropriateness, and her vocabulary has increased significantly. Her mother also stated that she had delayed cognition for her age initially, but she is now ahead of the expectations for her age following her most recent assessment.