

Infantile Encephalitis and Stroke; A Case Study

History.

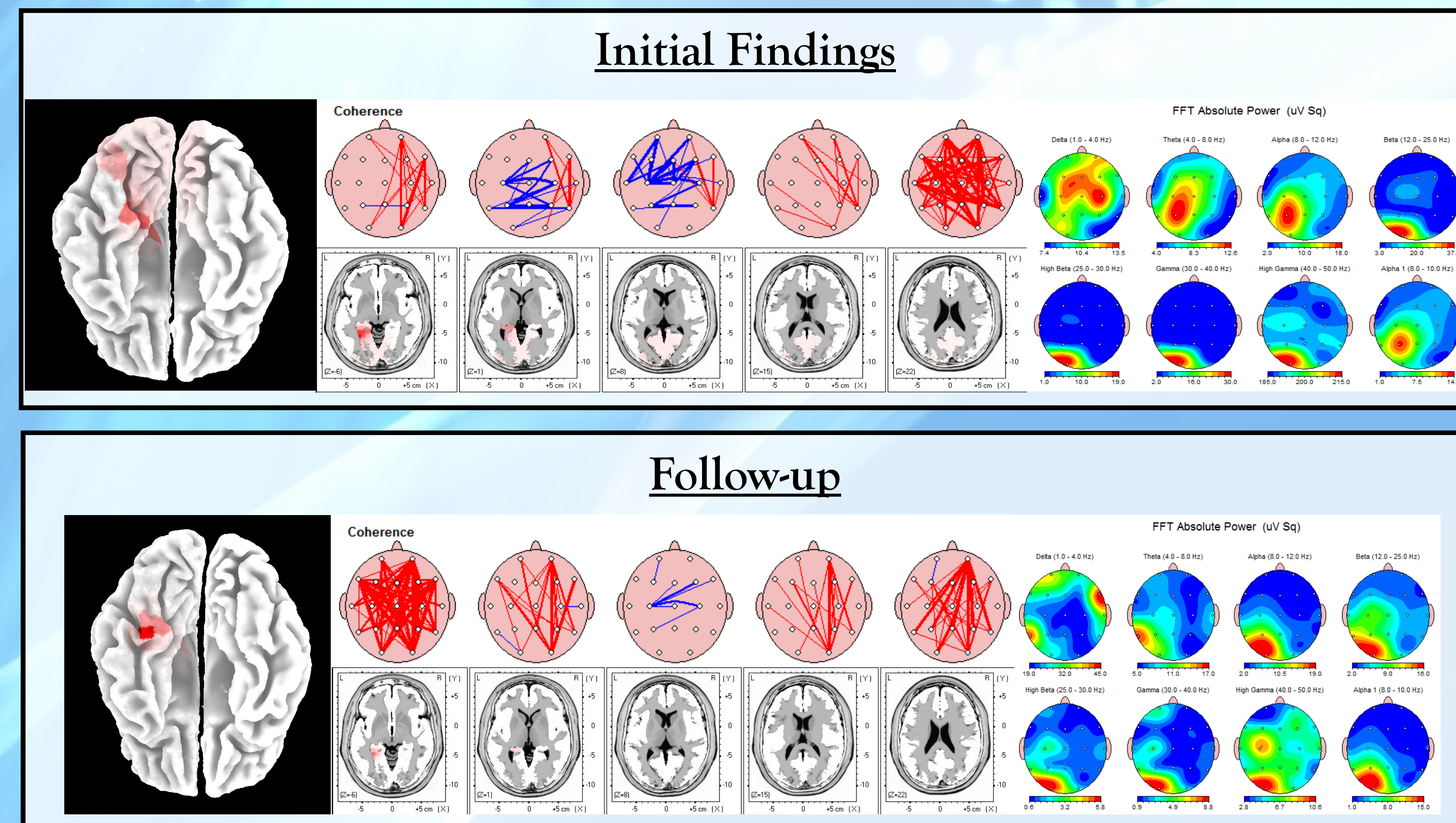
A 43 year old Male with a right-sided stroke, most likely resulting from encephalitis at age 7.5 months. He also has haemochromatosis. The stroke resulted in left sided paralysis, delayed motor development and delayed speech. First communication started at age 7 and walking began at 18 months with decreased left leg function. He developed seizures at age 22. Further symptoms include poor peripheral vision bilaterally, decreased left sided hand coordination, reduced short term memory and poor learning/ reading abilities (some dyslexia and problems multitasking).

Physical Exam

Physical findings included decreased left sided motor function in the upper extremity along with hyperreflexia. Vestibular and cerebellar exams demonstrated a positive left Romberg sign, left dysmetria and left dysdiadochokinesia. Cranial nerve testing demonstrated decreased left peripheral vision, decreased time to activation during the pupillary light reflex, decreased smell and reduced pain sensation in the left ophthalmic and maxillary branches of the trigeminal nerve.

Initial Findings

Initially qEEG and LORETA analysis revealed hypoactivity in the occipital and frontal lobes in theta and alpha frequencies with hypercoherence in delta and high beta frequencies. Primary findings included hypoactivation in the left frontal lobe in all frequency ranges and left parietal lobe in all delta, theta and alpha ranges. There was also hyperactivation in the left occipital lobe in all beta, alpha and gamma ranges. Aim of treatment was to activate the left frontal and parietal cortex and coherence globally whilst reducing left occipital lobe hyperactivity.

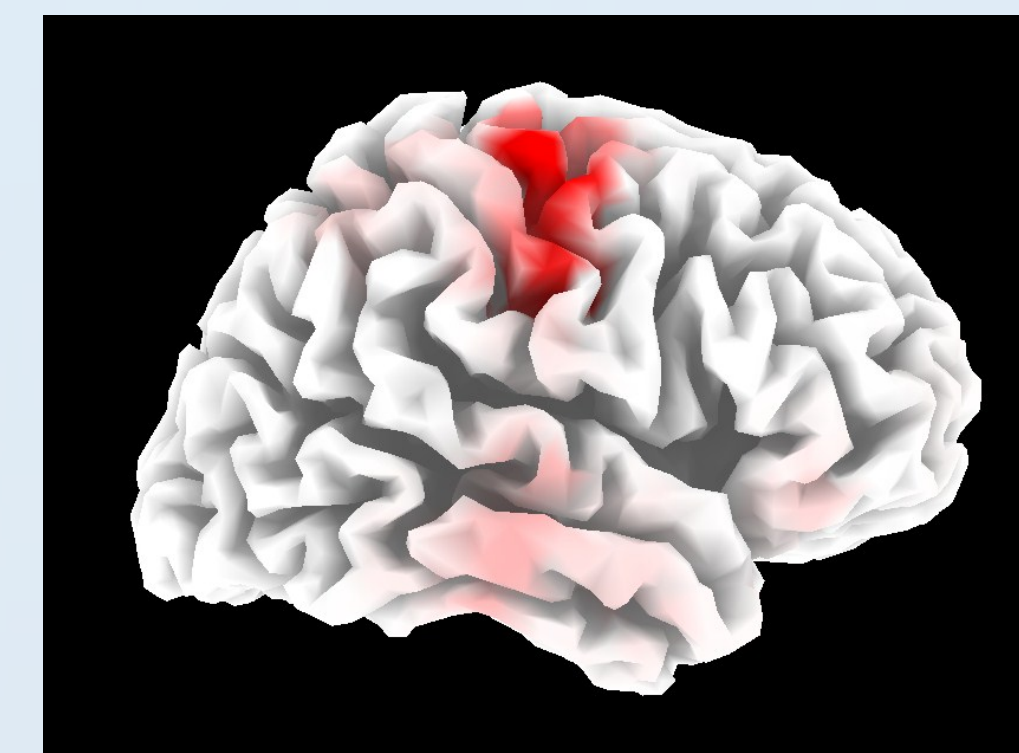


Follow up Findings

Follow up qEEG findings performed at 6 months since start of treatment revealed significant increased activation of the right parietal cortex as well as activation of coherence in the theta and alpha ranges. LORETA analysis showed significant normalisation of Brodmann area 37 in the occipital lobe as well normalising surrounding areas. Brodmann area 37 is associated with perception, vision, reading and speech.

What is LORETA?

Low resolution brain electromagnetic tomography (LORETA) is another functional imaging method based on electrophysiological and neuroanatomical constraints. LORETA and its variants have been employed by many studies seeking to analyse spectral components of EEG activation.

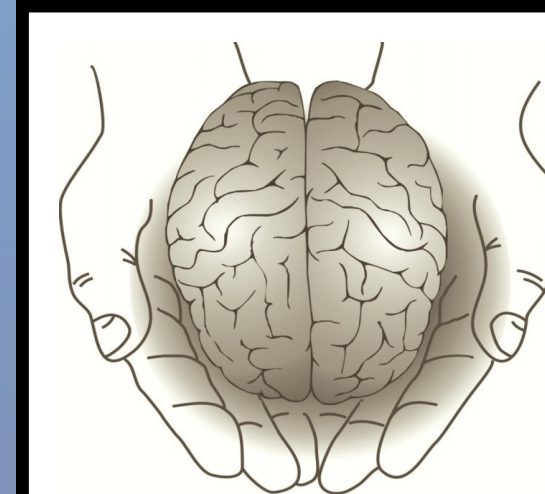


Reference: Pascual-Marqui, RD. Low Resolution Brain Electromagnetic Tomography (LORETA). Journal of Neurotherapy, 2001; 4: 4, 31 — 33

Conclusion

The patient has noticed many improvements including increased left sided peripheral vision, significant increase in left upper extremity coordination, retained short term memory, improved learning and information processing resulting in a promotion in the workplace to include multitasking and greater role with computer tasks.

Normalisation in Brodmann area 37 demonstrated by the qEEG and LORETA analysis has had a significant impact on quality of this patient's speech, vision, reading and learning within a 6 month period.



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