Frontal Lobe Epilepsy and the Procedures used to Combat these Seizures

Frontal lobe epilepsy is a common epileptic seizure that is common in children and adults. These types of seizures are found to be different in children and adults with a strong prevalence due to brain development in children. There are three main articles that dive into the different concepts that are going to be analyzed within this paper. The three main concepts to be analyzed are the imaging techniques used to analyze seizure activity, neuropsychology, and surgical techniques along with pathology. The analysis of the articles providing the information for these concepts will take place in the paragraphs to follow.

Sinclair et.al, 2004 give a very detailed article on two out of the three concepts to be analyzed in their article, *Frontal Lobe Epilepsy in Childhood*. Imaging techniques are important to understand when developing a full analysis for the causes of certain seizures. The authors developed a study in which they used MRI and Electroencephalograms as the imaging techniques (*Frontal Lobe..*, 2004). They first started by doing an electroencephalogram and it was stated: "long term video electroencephalographic monitoring demonstrated eleptic discharge in the participants of the study (*Frontal Lobe..*, 2004). In addition to this, the authors used Magnetic Resonance Imaging to get a full image of the brain to see if there were any abnormalities. With the use of MRI and some additional help of Computed Tomography, these scans showed abnormalities in the brain (*Frontal Lobe..*, 2004). As for the next concept, being neuropsychology, the authors also wanted to test different cognitive abilities with the participants as well. The authors assessed immediate attention, verbal memory, manual speed, and coordination with the participants (*Frontal Lobe..*, 2004). These four variables were the most important to be tested and the authors also tested psychosocial functioning and behavior with the

participants in the act of the seizure. This source is going to provide most of the crucial information to understand about frontal lobe epilepsy. It is helpful to show what imaging techniques are effective and the neuropsychology associated with these puzzling seizures and this source provides the information to do so.

In addition to the Sinclair et.al research article, an article written by Jobst et.al, 2000 worked together with the first article to provide more insight on imaging techniques as well as pathology associated with a surgery option. The name of their article is *Intractable Seizures of Frontal Lobe Origin: Clinical Characteristics, Localizing Signs, and Results of Surgery*. In this article, the authors pointed out a few risk factors associated with MRI results that they had done. It was reported that five of thirteen patients had an abnormal MRI and no patient with a normal MRI had an obvious case for seizure activity (Jobst et.al, 2000). The authors dove into a surgical component that could be performed to identify exactly the type of seizure the participant had. It was reported that twenty-five patients underwent surgery for epilepsy and what the authors found was very surprising (Jobst et.al, 2000). In addition to this, the authors performed histopathology to see what results they could find and in the case that a participant needed anti-epileptic medication they would provide the participants with them (Jobst et.al, 2000). The authors shed light into these two concepts and the findings that come up are intriguing. The only thing I would say lacking in this article is the authors did not go into a neurological assessment as did Sinclair et.al, 2004.

Finally, the final article covers all three of the concepts to be covered in this paper. The article was also written by Sinclair et.al (the same team of researchers that provided the first article on *Frontal Lobe Epilepsy in Childhood*). In this article, they sought to go more in depth with a surgical and imaging technique to further analyze participants. The name of their article is

Extratemporal Resection for Childhood Epilepsy. The Imaging Techniques used were similar to the techniques used in the other articles as imaging the brain is typically done with an MRI or a CT scan. The authors pointed out that patients were observed using a Computed Tomography scan rather than strictly MRI. A surface electroencephalogram (EEG) was also used to identify problems with the epileptic zone (*Extratemporal Resection..*, 2004). The physicians also made T1 and T2 coronal cuts in addition to neuroimaging to ensure that the images they took were as accurate as possible (*Extratemporal Resection..*, 2004). As for a neuropsychological assessment, they performed pre and post operative neurological assessments and included a two factor analysis with the side and site of epileptic focus (*Extratemporal Resection..*, 2004). After this, the authors documented the assessment of parietal and temporal lobe seizures versus seizures that take place in the frontal lobe. As for pathology and surgical techniques, the participants in the study underwent different surgical techniques based off of specific imaging techniques that were used per participant (*Extratemporal Resection..*, 2004). Lastly, it was documented that the participants who underwent surgery became seizure free with the location of the seizure (*Extratemporal Resection..*, 2004). This article provides informative and accurate information of all three concepts being covered in this paper.

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