Refractory subhemispheric epilepsy

Refractory subhemispheric epilepsy is a type of epilepsy in which seizures originate in one hemisphere of the brain and are difficult to control with medication. It is a severe form of epilepsy that can cause significant disability and impact quality of life.

Treatment

In some cases, surgical intervention may be considered as a treatment option for refractory subhemispheric epilepsy. This may involve removing the part of the brain where the seizures are originating from, or disconnecting the affected hemisphere from the rest of the brain. However, surgery is not always a viable option and should be carefully considered in consultation with a neurologist and neurosurgeon.

Other treatment options for refractory subhemispheric epilepsy may include implantation of a vagus nerve stimulator, which is a device that sends electrical signals to the brain to help prevent seizures. Additionally, ketogenic diet and neurostimulation techniques such as transcranial magnetic stimulation (TMS) or deep brain stimulation (DBS) may also be considered.

It is important for individuals with refractory subhemispheric epilepsy to work closely with their healthcare providers to find the most effective treatment plan to manage their seizures and improve their quality of life.

The last few decades have seen the emergence of disconnective techniques, for both hemispheric and subhemispheric disease. The aim of a study was to describe the technique for a disconnective surgery for large epileptogenic lesions involving the central lobe (perirolandic cortices), parietal, and occipital lobes. This junctional cortex within the hemisphere (in contrast to anterior and posterior quadrantotomies) presents unique challenges when contemplating a complete disconnection of the region. The surgical technique is achieved through six distinct steps: fronto-central, inferior frontoparietal, lateral temporo-occipital, medial frontal, basal temporo-occipital, and posterior parasagittal callosal disconnections. The functional neuroanatomy of each step is described, along with cadaveric dissections. The authors describe this technique and include a case description of a young girl who presented with childhood-onset intractable epilepsy associated with cognitive stagnation. The postoperative seizure outcome in this patient remains excellent at 2 years' follow-up, with gains in cognition and behavior. Excellent seizure outcomes can be achieved if the network encompassing the entire epileptogenic cortex is disconnected while ensuring preservation of fiber systems that link functionally eloquent uninvolved cortices adjacent to the central quadrant [1].

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Cossu G, Aureli V, Roulet-Perez E, Thomas C, Marston JS, Pralong E, Messerer M, González-López P, Daniel RT. Central quadrantotomy for intractable childhood epilepsy: operative technique and functional neuroanatomy. J Neurosurg Pediatr. 2023 Feb 10:1-9. doi: 10.3171/2022.11.PEDS22356. Epub ahead of print. PMID: 36787130.