Epilepsy treatment

Antiepileptic drugs are the first choice of treatment, however, 30% of epilepsy patients are drug-resistant.

Advances in device technology have created greater flexibility in treating seizures as emergent properties of networks that exist on a local to global continuum. All patients with drug-resistant epilepsy are potential surgical candidates, given that intracranial neuromodulation through deep brain stimulation and responsive neurostimulation can reduce seizures and improve quality of life, even in multifocal and generalized epilepsies. To achieve this goal, indications, and strategies for diagnostic epilepsy surgery are evolving [1)].

Besides antiepileptic drugs, antitumour treatment might contribute to a reduction in seizure frequency. Temozolomide may contribute to an important reduction in seizure frequency in patients with LGG. Seizure reduction following TMZ treatment has prognostic significance and may serve as an important clinical outcome measure in patients with LGG [2)].

A high-fat, low-carbohydrate diet, often referred to as a ketogenic diet (KD), has been suggested to reduce frequency and severity of chronic pediatric and adult seizures.

Patients with seizures and epilepsies comorbid with cerebrovascular disorders (CVDs) or brain tumors (BTs) are managed by different specialists, including neurologists with expertise in epilepsy (epileptologists), CVDs, and neuro-oncology, as well as neurologists without special expertise (general neurologists), and also emergency room physicians (EPs), intensive care physicians, and neurosurgeons. It has never been studied how these specialists interact for the treatment of seizures or epilepsy in these patients.

A survey was used to investigate how patients with such comorbidities are managed in hospitals in Italy.

One hundred and twenty-eight specialists from hospitals in all parts of Italy filled in a questionnaire. Epileptologists were in charge of treatment of epilepsy in about 50% of cases while acute seizures were treated mainly by general neurologists (52% of cases). Diagnostic, therapeutic, and assistance pathways (PDTAs) for CVD and BT epilepsies were declared by physicians in about half of the hospitals while in about a quarter, there were only informal agreements and, in the remaining hospitals, there were no agreements between specialists. CVD neurologists, specialists in internal medicine, and EP were most often in charge of treatment of epilepsy comorbid with CVD. General neurologists, neuro-oncologists, and neurosurgeons were included in teams that manage BT epilepsies while epileptologists were included only in a small percentage of hospitals.

Clinical decisions on epilepsy or seizures in patients with such comorbidities are often handled by different specialists. A new team culture and PDTAs are needed to guarantee high standards of diagnostic and therapeutic procedures [3)].

Neurostimulation technologies and neurosurgical procedures have improved the clinical outcomes of patients with epilepsy, and have led to important advances in understanding the neuropathophysiology of epilepsy/seizures and brain plasticity. For example, neurostimulation allows long-term in vivo electroneurophysiological recordings of specific brain regions that has not been previously possible in humans [4].

Antiepileptic drug

see Antiepileptic drug.

Vagus nerve stimulation for drug-resistant epilepsy

Vagus nerve stimulation for drug-resistant epilepsy

Magnetic resonance image-guided laser interstitial thermal therapy for epilepsy

Magnetic resonance image-guided laser interstitial thermal therapy for epilepsy.

Deep brain stimulation of the anterior nucleus of the thalamus

Deep brain stimulation of the anterior nucleus of the thalamus

Epilepsy surgery

see Epilepsy surgery.

Epilepsy prevention

Epilepsy prevention

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