Epilepsy: Not A Disease But A Disorder
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RESEARCH TOPIC
The purpose of this project is to know more about epilepsy and its different aspects as follows:
- Causes
- Psychological effect on adults
- Treatment

Research Topic Questions
1. What are different types of seizures?
2. What is epilepsy?
3. What causes epilepsy?
4. How is epilepsy diagnosed?
5. How does epilepsy affect daily life?
6. How can epilepsy be treated?
7. How do genes play a role in causing epilepsy?
8. How can epilepsy be treated?
9. How is epilepsy diagnosed?

Research Compliance and Thesis
For my research compliance, I completed NIH human subjects training.

LITERATURE REVIEW
Epilepsy is a disorder characterized by repeated seizures as a result of underlying brain damage and differs with the type of condition. It may consist of loss of consciousness, continuous jerking of different body parts, emotional explosions, or periods of mental confusion. In people suffering from epilepsy, brain waves, which are displays of electrical activity in the cerebral cortex, have an abnormal rhythm made by excessive and consistent nerve-cell discharges. Recordings of brain waves are therefore important in diagnosis and study of the disease and are obtained by a device called the electroencephalograph. Five percent of people in the world have epilepsy.

Causes:
Epilepsy is a disorder that disturbs the normal pattern of neuron activity and is related to illness, brain damage, or abnormal brain development. The factors that cause epilepsy are:
- Neurotransmitters: Some people with epilepsy have an abnormally high level of excitative neurotransmitters that increase neuronal activity, while others have an abnormally low level of inhibitory neurotransmitters that decrease neuronal activity in the brain. Either situation can result in too much neuronal activity and cause epilepsy.
- Nerve Connection: In some cases, the brain’s attempts to repair itself after a head injury, stroke, or other problem may inadvertently generate abnormal nerve connections that cause epilepsy. Abnormalities in brain wiring that occur during brain development also disturb neuronal activity and lead to epilepsy.
- Cells: Cell membranes are crucial for a neuron to generate electrical impulses. Any disruption in the movement of molecules, cell nourishment, and repair of the membrane can lead to epilepsy.

Blood brain barrier dysfunction: Blood brain barrier dysfunction is found in many diseases of the central nervous system, including stroke, traumatic injuries, tumors and infections. Blood brain barrier injury does not occur due to loss of inhibitory interneuron, but occurs due to early dysfunction of astrocytes and inflammation response. It does not induce epileptogenesis by provoking SE or immediate neuronal death but it induces seizure. The accumulation of serum derived from intracellular albumin after SE in glia cells and neurons initiates epileptogenesis.

Other conditions that can cause epilepsy: In many cases, epilepsy develops as a result of brain damage from other disorders such as brain tumor, stroke, heart attack, infections, cerebrovascular disease, and developmental and metabolic disorders.

Psychological effect on young adults and adolescents:
The psychosocial impact of living with epilepsy often goes unacknowledged. Young adults and their family members are often tied up with the emotional and social consequences of this serious disorder. The age of the child, the type and severity of the disorder, the functioning of the child prior to the diagnosis of their temperament, and the availability of information and access to support services are some of the factors that may play a role. They may end up blaming themselves or become critical of “the systems” they have to deal with, which may compound their distress and aggravate their problem. The struggle of dealing with epilepsy often starts with the first seizure and continues long past seizure control has been obtained. Therefore, it is essential for healthcare professionals to consider the effect of epilepsy on the lives of young adults and to recognize the specific needs of this patient group.

Treatment:
Research has shown that current methods can control seizures at least some of the time in about eighty percent of people with epilepsy. However, another twenty percent with epilepsy have intractable seizure. Epilepsy can be controlled with medicine or surgery, and medicine reduces the effect of epilepsy. However, it does not cure the disorder completely. When a person’s seizures cannot be adequately controlled by medications, doctors may recommend that he or she be evaluated for surgery. Doctors also recommend surgery for epilepsy treatment only if there is an identifiable brain lesion, a damaged or dysfunctional area that is believed to cause the seizures. Epilepsy can also be treated through diet and taking various vitamin supplements.

Conclusion:
In conclusion, epilepsy is a brain disease where there is a sudden change in brain tissue which triggers loss of consciousness, continuous jerking of different body parts, emotional explosions, or periods of mental confusion. There are several causes, including dementia, congenital brain problems, brain tumor, blood brain barrier dysfunction, misplacement of neurotransmitters, and sudden disruption in cell membrane. Psychological effects of epilepsy are more common in young adults. Epilepsy can be treated through medication or surgery but cannot be cured completely.

METHODS
Different data sources and search strategies could be used in order to determine the average population suffering from epilepsy.
- Population-based studies reporting the prevalence of epilepsy in communities could be estimated and variation in people suffering from epilepsy could be analyzed.
- Studies could be done in order to analyze the causes and prevention of epilepsy.
- Inclusion criteria for subsequent analysis can be done to incorporate studies by carrying out following:
  I. Population-based design
  II. Providing information on the methods used to diagnose epilepsy, its causes and prevention in which epilepsy prevalence can be accessed in the general population among both children and adults.
- Different data can be extracted on the demographic characteristics of the population examined such as:
  I. Age range
  II. Sex
- Data can be used to analyze the overall demographic population suffering from the disorder.
- Different methods can be used to describe on term epilepsy, cause, prevention, and treatment which is also relevant to the conduct of research on my topic. For example:
  I. Flow chart
  II. Schematic diagram
  III. Tables
- Different steps in the event of epilepsy can be described and non-specific predisposing factors determined.
- Public awareness of prevention of disease can be measured.
- Hypothesis-testing and experiments can be done in order to determine the relationship between diagnosis of the disease and its treatment.

BIBLIOGRAPHY

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