

### Diseases of the Nervous System Research

**Epilepsy** - Epilepsy is neurological disease that causes un-provoked seizures. Seizures are temporary abnormal electro-physiologic activities in the brain, resulting in abnormal timing of electrical neuronal pulses. This disease affects over 50 million people world wide. Epilepsy is never cured but it is controlled by medication and various methods of physiotherapy. However surgery may be used in some cases where the patient suffers extreme effects of the epilepsy. Although in some cases the disease only lasts for the patients' childhood or in some rare cases there early 30s and discontinues after.

There are five ways to classify epilepsy:

1. The first incident, such as something that seem like a stroke or something that halts the excess neurone movements in the brain.
2. For a trained doctor to observe one of the seizures.
3. To find the location of the where the seizure originates through ECG or EEG
4. To look through family history and see if there is a direct link with n incident that has occurred
5. To see the event that caused the attack and see if that cause has a link with epilepsy

There are many causes of epilepsy, doctor thin there are 2 different set of causes; Symptomatic and idiopathic. Symptomatic epilepsies originate from structural and "blood-rush" problem in the brain. Some of the symptomatic causes of epilepsy are:

- Inherited (Generic)
- Pregnancy troubles (suzerain sections increase likelihood)
- Strokes
- Head Injuries
- Vaccinations, drugs and alcohol

Treatment is given in the form of medication which is supplied by a doctor or general physician. Sometimes a vagus nerve is implanted with something to help it keep going. Also a good and balanced diet can help it heal itself but this in very minor cases (for instance after a head injury or a crash of some sort).

**Motor Neurone Disease** – It is a disorder that manages to kill (more and more as it goes on) motor neurones. There are many different forms of MND, here is a list of them and what they cause / do:

**Amyotrophic lateral sclerosis** – is caused by aging and degenerating of (both upper and lower) motor neurones that do voluntary actions such as speaking.

**Progressive muscular atrophy** – this form affects only the lower motor neurones. It causes wasting away of the body and mild (which progresses to vast) muscle weakness

**Spinal Muscular Atrophy** – this affects only the motor neurones in the spinal chord. It causes problems when swallowing and sucking.

**Progressive bulbar palsy** – This form causes dysfunction of muscles and affects the cranial nerves (in the lower brain) and the vagus nerve

Causes of motor neurone disease are not generic (90%) however whether or not if anyone in the patient's family has motor neurone disease affects how susceptible they are to the disease. However the other 10% are generic, the following genes are linked to amyotrophic lateral sclerosis (most common form of motor neurone disease): Cu/Zn superoxide dismutase *SOD1*, *ALS2*, *NEK1* (rare), senataxin (*SETX*).

Motor neurone disease is mostly likely to affect people between the ages of 50 – 70 and men have a higher chance of getting it. Although environmental effect aren't accepted by all doctors, things such as the Gulf war, electric shock and playing professional football are linked to motor neurone disease.

**Multiple Sclerosis** – Multiple Sclerosis is a long-lasting disease that affects the central nervous system. It can causes changes in your senses, in particular your vision and smell. It may also cause depression, impaired movement and disability.

The most common initial symptoms reported are: changes in sensation in the arms, legs or face (33%), complete or partial vision loss (optic neuritis) (16%), weakness (13%), double vision (7%), unsteadiness when walking (5%), and balance problems (3%), patients also have a small chance of getting an eye twitch or flicker.

It can be diagnosed by 4 ways. Clinical is not enough unless the patient has had two separate episodes of neurological displacement. Magnetic resonance imaging (MRI) can take scans of the spinal chord and brain to identify areas of fault. Testing of cerebrospinal fluid in the central nervous system can show evidence of damaged neurones.

### How Drugs Effect the Nervous System

~~Alcohol~~ - is a central nervous system depressant. Alcohol is very easily inserted into the blood stream. It can gain entry through the stomach or the small intestine (to the blood stream). Things such as age, body mass index, gender, amount of food taken and other drugs taken (or not) effect how alcohol effects us.

If you have a little alcohol it can affect you in this way:

- Calming effect on body
- Slows reflexes
- Impairs reaction time
- Reduces co-ordination

Then after if you have more, it can make all the negatives worse (so your reaction time will get even slower and your co-ordination will get worse) however some more things will be added to the list of negatives. Your speech will start to slur and you will start to have mood swings. If you go way past what you should be having you could end up in a coma, vomiting and temporary breathing difficulties.

*Caffeine* – is central nervous system stimulant. Caffeine enters the bloodstream through the stomach and small intestine and can have its effects as soon as 15 minutes after it is consumed. Once in the body, caffeine will stay around for hours: it takes about 6 hours for one half of the caffeine to be eliminated. In small doses:

- Increases alertness
- Insomnia
- Nervousness and Headaches

*LSD* – is a very powerful Psychedelic drug. The effects of the drug depend on the person who is taking it's mood. Some of the effects are:

- Hallucinations
- Flashbacks
- Colours
- Distorted vision
- Increased blood pressure

### Developments in Treating Mental Illnesses Through Electric Shock and Modern Day Therapy

*Electroconvulsive therapy* – is a form of shock therapy. In the US it is mainly used for people that don't get cured from medication (depression). ECT was introduced as a treatment for schizophrenia in the 1930s, and soon became a common treatment for a wide range of psychiatric disorders.