Stroke and Recovery

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- Approx. 1.7 million stroke survivors, 75% whom are between the ages of 55 and 84.
- 3rd most frequent cause of death in America
- 10% are able to return to work, 40% will experience mild disability and 40% will be severely disabled.
- $30 billion spent annually but the emotional impact on patients and families is incalculable.

Risk factors:

- High blood pressure, cigarette smoking, diabetes and elevated cholesterol. Most of the reasons for this remain obscure.
- Research has identified and even more profound risk factor- **Homocysteine.**
- Homocysteine is an amino acid generated during the normal course of protein digestion and is now recognized as a critical factor in increasing the risk of stroke and coronary artery disease.
- Elevation of homocysteine dramatically increases the production of altheromatous plague- a mixture of fat and calcified inflammatory tissue that progressively narrows the arteries.
- *** It is unclear why homocysteine has received so little attention except for the fact that homocysteine levels can be decreased with B-complex vitamins, B6, B12 and folic acid.
- Inadequacies of any one or more of these nutrients can enhance homocysteine production leading the increase in stroke.
- Checking homocysteine is easy as checking cholesterol. It requires over night fasting and blood work. Normal ranges are 8-14umol/L; level below 10 should be the goal.

Activating Idling Neurons:

- It has been reported from the Univ. of Kansas Medical Center that the brain has a significant potential for recovery following an injury.
- The six-month end point is no longer a final outcome.
- When a person has a stroke there is a portion of the brain that may be permanently destroyed, however there is no clear cut delineation between dead tissue and tissue which remains fully functional.
- This area of functional but non-functioning tissue has been termed the "**ischemic pneumbra"** in the scientific literature or a more useable term would be **"Idling Neurons".** They are similar to a parked car with the motor running waiting to put into gear.
- This can be done via, light sound, sensory feedback, motor feedback, computer programs using light frequencies and the spinal manipulation as 95% of cortical activation comes from mechanoreceptors/ muscle spindles located in the spinal column.

- **Hemifield Stimulation- s**timulation of the (R/ L, superior / inferior) quadrantanopial will evoke – thalamocortical receptor activation. Receptor potentials are produced by environmental stimuli and are associated to the intensity of the stimuli. For example, more light will produce a larger potential in receptors for light than less light. Color has a greater receptor potentials depending upon the color. (Red and green are on the lower end of the light spectrum and are less intense with lower receptor activation. Blue and violet are on the higher end of the spectrum creating greater activation).
- An increase in stimulation increases the amount of the receptor firing. This will increase the amount of activation to the neuron. There is a huge amount of Na+ influx into the cell so it stays close to depolarization and fires. This allows the neurons to become stronger by increasing their internal matrix, similar to lifting weights your muscles will get stronger, and will be able to perform more work.
- The light from the checks can be located on the screen so they can affect left or right cortexes (brain) along with being able to affect Parietal and Temporal lobes via the Optic Radiations of the visual pathway ending in the occipital region of the brain. As the brain becomes healthier color changes and or size of the squares (the smaller the square the increase in receptor potentiation) will continue to increase brain activation leading to normalizing of the cortical neurons.

Oxygenation- with the use of a **Hyperbaric Oxygen Therapy (HBOT)** can also restore metabolic activity to damaged neurons.

- HBOT has been used medically for thermal burns, carbon monoxide poisoning, non-healing skin wounds, diabetic ulcerations and radiation injuries.
- It is used more in Europe and the UK than in the US as the first line of therapy for stroke.
- The HBOT increases the oxygen carried in all the body's fluids including plasma, lymph, intracellular fluids and cerebrospinal fluid.
- It also enhances the growth of new blood vessels, increased ability of the white blood cells to destroy bacteria and remove toxins, enhanced growth of fibroblasts (cells involved in wound healing) and most importantly in stroke recovery.
- The patient receives 100% oxygen under pressure for 1-2 hours.
- Since 1970 the scientific journals have reported over 1,000 cases demonstrating a 40- 100% rate of improvement for stroke treating with the HBOT. The improvements include gait, speech, mental function, motor power and a reduction in spasticity.
- A functional scan known as a Single Proton Emission Computerized Tomography (SPECT). It's unique in that it scans the brain actually identifying and quantifying brain metabolism, both normal and abnormal.

Chiropractic

- We resist gravity with our muscle spindles in our spine and the inner ear (semicircular canals). Our entire life is spent resisting gravity as we walk upright. As we developed by standing there is greater activation of our spinal system and therefore greater spinal-cortical stimulation. This is the mechanism for our advanced cortical/ brain development. When you move your head you not only activate receptors in the inner ear but the cervical spine muscle spindles are responsible for approximately 60-65% of all cortical activation.
- Understanding the portion of the brain that was injured through examination allows a specific treatment plan of manipulation and the other for that injury.

Nutrition

- **B6, B12 and folic acid** as they decrease homocysteine levels.
- B6 100mg, B12 100 mg, folic acid 800 mcg and B3 100 mg daily.
- Nutrients for increased antioxidation, mitochondria function for energy and the removal of metabolic toxins.
- **Acetyl-L-carnitine-** essential in cell metabolism for transporting fuel into the mitochondria. 400 mg.
- **Alpha Lipoic Acid and NADH**- the idling neurons have inadequate stimulation and cellular energy production these products increase mitochondria function and the availability for energy. Alpha Lipoic acid- 400 mg NADH- 5 mg twice daily.
- **Magnesium, Vitamins C, E, B1, B12, creatine, glutathione, carnitine, iso-leucine, anti-oxidants support and EPA/DHA or Omega-3.**

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