PATNA UNIVERSITY
M.A(PSYCHOLOGY)
SEMESTER-2
NEUROPSYCHOLOGY (CC6)
TOPIC: STROKE

UDAY SHANKAR
UGC NET, Rajasthan SET, PhD
AD-HOC FACULTY
DEPARTMENT OF PSYCHOLOGY
MAGADH MAHILA COLLEGE
PATNA UNIVERSITY
Contact No: 9308021985
Email-udaypupatna2424@gmail.com

STROKE

- A stroke also known as a cerebrovascular accident, occurs when a blood vessel bringing oxygen and nutrients to the brain bursts or is clogged by a blood clot or some other particle. This deprives the brain of blood, causing the death of neurons within minutes. Depending on its location, a stroke can cause many permanent disorders, such as paralysis on one side of the body and loss of speech.
- Stroke tends to occur more in males and in those with risk factors such as diabetes, high blood pressure, heart disease, obesity, high cholesterol, and a family history of stroke.
- Effects of strokes vary from barely noticeable to immediately fatal.
- The more common type of stroke is **ischemia**, the result of a blood clot or other obstruction in an artery. In ischemia, the neurons deprived of blood lose much of their oxygen and glucose supplies.
- The less common type is **hemorrhage**, the result of a ruptured artery. In hemorrhage, they are flooded with blood and excess oxygen, calcium, and other chemicals.

- There are two types of ischemic strokes: **thrombotic** and **embolic**.
- If an artery becomes obstructed at the point where the clot formed, a **thrombosis** (stationary clot) results.
- If the clot travels to a different part of the vasculature, then an **embolis** results. Thrombotic strokes account for about 50% of all strokes. Thrombotic strokes can occur in the large arteries such as the carotid or middle cerebral arteries or the smaller penetrating arteries.
- Lacunar strokes—which often form in subcortical areas such as the basal ganglia, internal capsule, white matter, and pons—are mostly thrombotic but can also be embolic.
- The traveling clots that characterize embolic strokes originate outside of the brain in large bore vessels or the heart and travel upstream until they become lodged in smaller vessels.
- Hydrocephalus can occur after any type of stroke.

- Hemorrhagic strokes are caused by the rupture of a blood vessel in the brain that allows blood to leak inside the brain.
- The vessel or tissue abnormalities leading to hemorrhage can be caused by aneurysms, angiomas (congenital collections of abnormal vessels including capillaries, veins, and arteries such as arterial venous malformations), blood diseases (such as leukemia), infections, toxic chemicals, trauma, and brain tumors.
- The most common site for hemorrhage is in the basal ganglia, and the most common cause is hypertension.
- A subarachnoid hemorrhage occurs when a blood vessel ruptures outside the brain and pools in the subarachnoid space surrounding the brain.
- The location of a stroke and its possible secondary effects is often directly linked to specific neuropsychological abnormalities.

Cause of Stroke

- Infections
- Heart Disease
- High Blood Pressure
- Medications
- Exposure to radiation or toxic substances
- Degenerative conditions
- Tumors
- Excessive Alcohol intake
- Smoking
- Stress
- Obesity
- High Cholesterol
- Diabetes

Treatments Of Stroke

- A drug called tissue plasminogen activator (tPA) breaks up blood clots (Barinaga, 1996). To get a benefit, a patient should receive tPA quickly, at least within 4.5 hours after a stroke.
- The most effective known method of preventing brain damage after strokes in laboratory animals is to cool the brain. Cooling protects the brain after ischemia by reducing overstimulation, apoptosis, and inflammation.
- Possible methods of cooling include ice packs on the head, injections of cool liquid into the blood, or drugs that lower body temperature.
- Exposure to cannabinoids (the chemicals found in marijuana) minimizes the damage caused by strokes in laboratory animals. The theoretical rationale was that cannabinoids decrease the release of glutamate. If excessive glutamate is one of the reasons for cell loss, then cannabinoids might be helpful.

Mechanisms of recovery after Stroke

- **Increased Brain Stimulation-** After damage to any brain area, other areas that have lost part of their normal input become less active. Recovery from a stroke depends largely on increasing activity for the opposite side of the brain.
- **Diaschisis**, from a Greek term meaning "to shock throughout" refers to the decreased activity of surviving neurons after damage to other neurons. If diaschisis contributes to behavioral deficits following brain damage, then increased stimulation should help.
- **Regrowth of axons-** Although a destroyed cell body cannot be replaced, damaged axons do grow back under certain circumstances. It can help dealing with stroke.
- **Sprouting-** Brain damage accelerates the process of adding new branches of axons and dendrites while withdrawing old ones.

- **Denervation Supersensitivity-** Heightened sensitivity to a neurotransmitter after the destruction of an incoming axon is known as denervation supersensitivity. Heightened sensitivity as a result of inactivity by an incoming axon is called disuse supersensitivity. Denervation supersensitivity helps compensate for decreased input. In some cases, it enables people to maintain nearly normal behavior even after losing most of the axons in some pathway.
- **Learned Adjustments in Behavior-** Recovery from brain damage depends on learning to make better use of the abilities that were spared. Many people with brain damage find ways of getting through the tasks of their day without relying on their impaired skills. Therapy for people with brain damage focuses on encouraging them to practice skills that are impaired but not lost.

Some Other measures:-

- Controlling risk factors with diet, exercise, and certain drugs can help prevent stroke. Other specific treatments involving surgery or arterial stents can clear clogs in the arteries of the neck region.
- Anticoagulant drugs can reduce the likelihood of clots forming, traveling to the brain, and causing a stroke.
- Another promising possibility for improving recovery after stroke is through the use of neural stem cells.