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

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

HEAD INJURY

The possible causes of brain damage include head injury, tumors, infections, exposure to radiation or toxic substances, and degenerative conditions. Damage to brain tissues produced by cerebrovascular events or head injury results in both primary and secondary effects.

- Primary injuries involve neuronal death at the time of the injury, which can be caused by a number of events, such as, direct trauma, indirect trauma, diffuse axonal injury, and hypoxia.
- Secondary effects occur post-injury and involve either a global loss of neuronal efficiency resulting from the brain's general response to the injury, or a specific time-limited decrease in neuronal function associated with the primary injury.

The effects of closed head injury depend on severity and frequency. Many, probably most, children and young adults sustain at least a mild blow to the head from falling off a bicycle or similar accident, from which they recover within a few days. Repeated head injuries, common in certain sports, are more worrisome. After a severe head injury, recovery is slow and often incomplete. Traumatic brain injuries occur across all ages, with the highest rates found in 15–24 year olds and those over the age of 75. The severity distribution of patients admitted to a hospital following head injury in the past 25 years is approximately 80% mild, 10% moderate, and 10% severe. Mild traumatic brain injuries are especially common.

Terminology for Injuries to the Head

1. Linear fracture- Linear fractures are usually thin and straight. A diastatic fracture is a linear fracture that extends into a suture (the line where two skull bones join).

2. Depressed fracture- A dent in the skull is referred to as a depressed skull fracture.

3. Contusion- A contusion is a bruise on the brain that is usually associated with swelling and some bleeding.

4. Coup (contrecoup) injury- A coup or contrecoup injury is a classic lesion pattern resulting from serious falls.

5. Hemorrhage- It represents bleeding in or around the brain. Hemorrhages due to Trauma represent an independent source of injury to the brain. Hemorrhages within the brain are caused by damage to an artery or vein.

6. Trauma- It can result in a combination of hemorrhages within the skull.

7.Traumatic axonal injuries- These are often referred to as diffuse axonal injuries, shearing injuries, or deep white matter injures.

8. Hematoma- A hematoma is an accumulation of blood in a specific location. Hemorrhages and hematomas around the brain may be in three locations: epidural, subdural, and subarachnoid.

9. Edema- It is the term used to describe swelling in the brain. Swelling can be minor, as in the case of a small contusion, or severe, when associated with multiple or severe contusions. Edema (swelling) of the parenchyma combined with hemorrhage can result in herniation

10. Ventricular Dilation, also referred to hydrocephalus exvacuo , can occur following severe traumatic brain injury.

11. Focal Brain Injury- Focal injury results from the collision of the brain with the rough interior surface of the skull at the instant of impact. When focal brain injury is present, it is typically superimposed on a background of more generalized brain Damage.

12. Diffuse Axonal Injury (Generalized Brain Damage)- The physiological basis of such brain damage is direct damage to the axons or their interfaces with adjacent neurons at the synapse. The forces that produce such injury are referred to as the shear-strain effect.

Problems in Head Injury

1. Motor Impairments- Because of severe traumatic brain injury, motor impairments, such as paresis (weakness) or plegia (paralysis), sometimes occur following. Some patients experience spasticity (increased muscle tone and exaggerated reflexes), ataxia (loss of muscle coordination), or both.

2. Movement Disorders- Head injury produces either slowness or poverty of movement (hypokinesia) or excessive involuntary movements (hyperkinesia). Movement disorders are tremors and dystonias.

3. Cranial Nerve Impairments- The cranial nerves can be damaged due to skull fractures, shearing forces, intracranial hemorrhages or hematomas, or uncal herniation. can cause problems with olfaction, vision, hearing, balance, eye movements, facial sensation, facial movement, swallowing, tongue movements, and neck strength.

4. Visual Impairments- Visual impairments and ocular abnormalities can arise from orbital fractures, cornea, lens, or retinal injuries, cranial neuropathies, brain stem damage, or damage to subcortical or cortical regions involved with the visual system.

5. Imbalance and Dizziness- Individuals who sustain traumatic brain injuries can experience temporary or permanent deficits in static or dynamic balance. Dizziness is a common complaint in patients with traumatic brain injuries of all severities (Ex, Vertigo).

6. Headaches- Temporary or chronic headaches can occur following injuries to the neck, head, or both. The most common types of headaches following injuries to the neck or head are- Muculoskeletal headaches, Cervicogenic headaches, Neuritic and neuralgic head pain, post-traumatic migraine, and Post-traumatic tension headache.

7. Sexual Dysfunction- Human sexuality is influenced by physical, cognitive, emotional, and social factors. Thus, traumatic injuries to the brain can lead to changes in sexuality and functioning through multiple mechanisms.

8. Fatigue and Sleep Problems- Fatigue and sleep problems are common in patients with head injuries. Fatigue is experienced as tiredness, weakness, or exhaustion. Sleep disturbances following traumatic brain injury are typically characterized as insomnia, hypersomnia or disturbed sleep–wake (circadian) cycles.

9. Depression and Anxiety Disorders- Differential diagnoses of post head injury depression include adjustment disorder with depressed mood, apathy, emotional liability, and post-traumatic stress disorder. Anxiety disorders may include generalized anxiety disorder (GAD), panic disorder, obsessive compulsive disorder (OCD), specific phobia, social phobia, and post-traumatic stress disorder (PTSD) can be because of head injury.

10. Personality Changes, Apathy, and Motivation- Head injuries can cause changes in personality and behavior. Damage to the frontal lobes can result in impulsivity, emotional liability, socially inappropriate behaviors, apathy, decreased spontaneity, lack of interest, or emotional blunting. Damage to the temporal lobes can result in episodic hyper-irritability, aggressive outbursts, or dysphoric mood states.

11. Lack of Awareness- Persons with head injuries have reported to lack of awareness. Lack of awareness has been described using the following neurologic and psychodynamic terminology: Agnosia (Impaired recognition of previously meaningful stimuli that cannot be attributed to primary sensory defects, attentional disturbances, or a naming disorder), Anosognosia (lack of knowledge, or unawareness of cognitive, linguistic, sensory, and motor deficits following neurological Assault), Anosodiaphoria(Lack of concern for serious neurological Impairments), Denial of Insight (psychological explanation to account for symptoms of anosognosia), and Lack of Insight (A multidimensional construct that describes a spectrum of concepts).

EPIDEMIOLOGY AND ETIOLOGY OF HEAD INJURY

1. motor vehicle crash

2. Falls

3. bullet wounds

4. Sports, recreational activities

5. Alcohol Addiction

6. Industrial Accidents