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Traumatic Brain Injury and its Implication in Anaesthesia: Anaesthetic Pharmacology 201.

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Traumatic brain injury (TBI) has become a public health concern as it has been observed to be a leading cause of death and disability globally (Dewan et al. 2018). As low- and middle-income countries face the worst outcomes after TBI, the Special Monitoring Mission (SMM) International Human Rights Commission (IHRC) United Kingdom of Great Britain and Northern Ireland in collaboration with Wendy Noren Medical Research Institute and Retmed Physiotherapy and Wellness Center, have created Air Ambulance Service Models that are suitable for rural areas to reduce the time required to take accident victims suffering from TBI to the hospital for emergency treatment (Smith et al., 2022).

TBI cases are mainly classified as primary or secondary brain injury. The primary brain injury is due to direct impact on the brain leading to fracture, axonal injury, and disruption to the blood-brain-barrier while the secondary brain injury sequential to the primary brain injury occurs via pathophysiologic processes like brain ischemia, inflammatory and cytotoxic processes with hypoxaemia, hypotension and hypoglycaemia leading to an increased risk of secondary brain injury. Anaesthetic management controls intracranial pressure, hypotension and hypoxaemia to avoid secondary brain injury, studies have however shown that anaesthesia negatively contributes to secondary injury in TBI cases. Anaesthesia is employed so that patients can be unconscious during surgery, as TBI patients are already unconscious before surgery arguments arise about the necessity of anaesthesia in Traumatic Brain Injury cases.

The free radical gas Nitric Oxide (NO) is a molecule that has been implicated in brain injury cases for pathophysiologic and therapeutic actions. Studies by Cooke et al 2013, have shown that NO signalling affects synaptic remodelling and neuronal regeneration after axonal injury in Lymnaea stagnalis (The great pond snail) neurons while Terpolilli et al 2013 have proved that Inhaled NO reduces secondary brain damage after traumatic brain injury in mice. This study will therefore investigate if the secondary negative results of TBI cases after neurosurgery are caused by the original trauma or side effects of anaesthesia. We also intend to determine the role and level of expression of NO after Traumatic brain injury and whether therapeutic intervention with inhaled NO can be employed in TBI cases.

Biography

Yewande Okunoren-Oyekenu started her Doctorate Career at the University of Leicester, UK where she studied Cell Physiology and Pharmacology with a specialization in Neuroscience, before transferring to California Intercontinental University for a Doctor of Business Administration in Healthcare Management and Leadership. She serves in the Royal Voluntary Service as an NHS COVID-19 Responder. Yewande is the Regional Volunteers Coordinator of the Special Monitoring Mission (SMM) International Human Rights Commission (IHRC) United Kingdom of Great Britain and Northern Ireland. Grant Funding; Self-Funded Researchers (SMM IHRC Volunteers).