ABSTRACT BOOK

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Assessment Of Oxidative Stress In Chronic Cerebral Hypoperfusion-Induced Neurodegeneration In Rats.

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Aging related reduction in cerebral blood flow (CBF) has been linked with neurodegenerative disorders including Alzheimer’s disease and dementia. Experimentally, a condition of chronic cerebral hypoperfusion due to reduced CBF can be induced by permanent bilateral occlusion of common carotid arteries (2-vessel occlusion, 2VO) in rats. Oxidative stress, leading to neuronal apoptosis and death, is one of the mechanisms which is thought to play a significant role in chronic degenerative neurological disorders. The present study was planned to assess the alterations in oxidative and anti-oxidant mechanisms that might occur during chronic cerebral hypoperfusion. Malondialdehyde (MDA) concentration and antioxidant enzymes namely glutathione peroxidase (GPx), superoxide dismutase (SOD), and catalase were measured in the brain tissue after eight weeks of 2VO induction in rats. Results show an increased level of oxidative stress as reflected by significantly elevated levels of MDA, GPx, SOD, and catalase enzymes as compared with the control group. It is possible that compensatory rise in antioxidant enzymes occur in response to increased oxidative stress following ischemic insult.

Keywords: Chronic cerebral hypoperfusion, Neurodegenerative disorders, Oxidative stress, Lipid peroxidation, Antioxidant enzymes.