**Decoding Oxidative Stress and Antioxidative Parameters in Patients with Spinal Cord Injury**

**Ghizal Fatima1, Jan Fedacko2, Ammar Mehdi Raza3, Najah R. Hadi4,**

1Era’s Lucknow Medical College and Hospital, Lucknow, India

2Department of Cardiology, Pavol Jozef Safarik University, Kosice, Slovakia

3Department of Career Institute of Medical and Dental Sciences, Lucknow, India

4Department of Pharmacology and Therapeutics, College of Medicine, Kufa University, Iraq

**Corresponding Author:**

Dr. Ghizal Fatima,

Era’s Lucknow Medical College and Hospital,

Lucknow, India

Ghizalfatima8@gmail.com

Institutional email- info@elmcindia.org

**Introduction:**

#### In this study we evaluated the connivance of oxidative and antioxidative parameters in the pathogenesis of spinal cord injury (SCI). Although the etiology and pathogenesis of SCI remain to be fully understood, it has been suggested that reactive oxygen species (ROS) and oxidative stress may play a significant role in the pathophysiology of SCI. Furthermore, there is little information available in scientific literature about oxidative and antioxidative parameters in SCI patients.

**Methods:**

Oxidative stress was determined by measuring the levels of Lipid Peroxides (LPO) and Protein carbonyl in plasma and antioxidative parameters like Glutathione Reductase (GR), catalase and Glutathione peroxidase (GPx) in lysate in 40 SCI patients and 40 healthy subjects without SCI. However, pain was measured by McGill pain questionnaire.

**Results:**

Concentrations of catalase (p<0.01), GR (p<0.01) and GPx (p<0.01) were significantly lower in patients with SCI than in controls, and levels of oxidative stress parameters, LPO (p<0.01), Protein carbonyl (p<0.01) were significantly higher in patients than in controls. A significant positive correlation was found between LPO and pain score among SCI patients group. Furthermore, a significant positive correlation was also found between Protein carbonyl and pain score among SCI patients group than in control group.

**Conclusion:**

The present results indicate that SCI patients are exposed to oxidative stress and this escalated oxidative stress may play a role in the etiopathogenesis of the disease. Moreover, our results also show that increased oxidative stress parameters are more strongly amalgamated with pain in SCI patients.

**Key words:**

Spinal Cord Injury, Oxidative stress, Antioxidants, Pain