**Altered oxidative stress indices of testis induced by copper oxide nanoparticles in adult mice**

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Nanotoxicology, has evolved over the recent years into a fully developed area of environmental safety of nanomaterials. Due to tiny size (1-100 nm), nanoparticles have a large surface area-to-volume ratio, which allows them to penetrate the biologic membranes. Copper oxide nanoparticles (nCuO) are used in semiconductors, paints, lubricants, gas sensors, catalysts, solar cells, lithium batteries, etc. Oxidative stress (OS) is a common mechanism for nanoparticle-induced cell damage. OS leads to metastasis, cancer proliferation, apoptosis, DNA damage, cytotoxicity, and unregulated cell signaling. In the current investigation, we aimed to evaluate the alterations in OS indices induced by nCuO in the testis of adult mice. First, 75 mice were divided into negative control (intact), pseudo-control (receiving normal saline without nCuO), and three experimental groups receiving nominal doses 10, 20 and 40 mg/kg b.w. of CuO-NPs via IP, every other day for 21 days. The alterations in oxidative stress indices namely reactive oxygen species (ROS) level, lipid peroxidation (MDA/LPO) content, activity of glutathione peroxidase (GPx) and total antioxidant capacity (TAC) value were determined in testis homogenates, spectrophotometrically. Resulting data figured out dose-dependent alterations in OS indices as illustrated by an increase in the ROS levels, LPO content, GPx activity and a reduction in TAC value. Briefly, aforementioned treatments exerted testis toxicity, and it might be due to induction of oxidative stress resulting in abnormal function of testis. However, more extensive studies would be needed to verify the safety issues related to increased usage of nCuO by consumers.

**Keywords:** Nanotoxicity, Mice, Testis, Oxidative stress indices.