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The Neuroprotective effects of CeNPs on paraquat-induced oxidative toxic stress in brain

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Paraquat(PQ) as herbicides due to the unique characteristics has a significant worldwide consumption and production. This herbicide due to produce high levels of superoxide radical in mitochondrial in various tissues of animals and humans. Cerium oxide nanoparticle (CeNPs) is one of the most widely used and most important nanoparticles in addition to having strong antioxidative properties and inhibiting free radicals. The purpose of this study was to investigate the effect of CeNPs on brain oxidative toxic stress injury induced with PQ. The male rats were treated intraperitoneally daily with PQ (50mg/kg/day) and CeNPs (15,30 and 60 mg/kg/day) were administered alone or in combination for 2 weeks. After treatments, brain tissue samples were collected from all rats. Oxidative toxic stress biomarkers include total antioxidant power (TAP), lipid peroxidation (LPO), total thiol groups (TTG), DNA damage levels were measured. PQ increased brain LPO and DNA damage, reduced TAP compared with the control group and CeNPs30mg/kg reduced LPO and DNA damage compared to PQ group significantly $P<0.05$. According to these results, it seems that PQ exposure causes increased brain injury induced by free radicals, that this subject characterized by changing oxidative toxic stress biomarkers. Antioxidants such as CeNPs helps prevent damage caused by PQ.

Biography

Akram Ranjbar has completed his PhD at the age of 28 years from Tehran University. She is the Associated professor in Hamadan university of medical sciences. He has published more than 30 papers in international journals

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