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Protective effect of Ginseng against Cisplatin-induced Neurotoxicity and Cognitive decline in rats

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Neurological disturbance is one of the most common serios effect of cisplatin chemotherapy that triggers memory impairment and cognitive disability. The present study aimed to investigate cisplatin-induced neurotoxicity and behavior abnormality in male rats and explore the neuroprotective effect of ginseng extract via tracking its effect on the oxidative stress/inflammatory pathway. Cognitive decline was induced in rats by intraperitoneal dose of cisplatin (4 mg/kg BW/ week) for three months. Cisplatin induced behavior disfunction in Morris water maze task. In addition, it disrupted the antioxidant biomarkers (TBARS, NO, GST, GPX, CAT and SOD), neuroinflammatory molecules (TNF- α, IL-6, IL-12, IL-1β and COXII), neurotransmitters (ACh, AChE, MAO, NE, DA and 5-HT), apoptotic (caspase-3, P53 and Bax) and dementia markers (amyloid-β40 and amyloid-β 42). Co-treatment with ginseng extract (100 mg/kg BW/day) successfully ameliorated the cognitive behaviors and presented a good protective agent against neurological damage. Histopathological and histochemical study proved the neuroprotective effect of ginseng. Our data support the neuro-beneficial effect against several neurological disorders via its anti-inflammatory/antioxidant pathway.

Biography

Hend Mohamed Hussien has completed her PhD in biochemistry from Alexandria university, Egypt. She is a professor of biochemistry, pharmacology and therapeutics department, faculty of pharmacy and drug manufacturing, Pharos University, Alexandria, Egypt.

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