عنوان مقاله:

Protective effects of naringin against oxaliplatin-induced testicular damage in rats: Involvement of oxidative stress, inflammation, endoplasmic reticulum stress, apoptosis, and histopathology

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خلاصه مقاله:

Objective(s): Oxaliplatin (OXL) is a platinum-based chemotherapeutic agent widely used in the treatment of colorectal cancer. Unfortunately, this important drug also causes unwanted side effects such as neuropathy, ototoxicity, and testicular toxicity. This study aimed to investigate the possible protective effects of naringin (NRG) against OXL-induced testicular toxicity in rats. Materials and Methods: TIn the present study, rats were injected with OXL (۴ mg/kg, b.w./day, IP) in ۵% dextrose solution ۳۰ min after oral administration of NRG (۵۰ and ۱۰۰ mg/kg, b.w./day) on the ۱st, ۲nd, ۵th, and ۶th days. Then, the rats were sacrificed on the ۷th day and the testicular tissues were removed. Results: The results showed that NRG decreased (P<۰.۰۰۱) lipid peroxidation, increased (P<۰.۰۰۱) the activities of superoxide dismutase (SOD), glutathione peroxidase (GPx), catalase (CAT), and the levels of glutathione (GSH), and also maintained the testis histological architecture and integrity. NRG decreased the levels of apoptosis-related markers such as caspase-۳, Bax, and Apaf-۱ and increased Bcl۲ in the OXL-induced testicular toxicity (P<۰.۰۰۱). In addition, NRG reversed the changes in mRNA transcript levels of oxidative stress, inflammation, and endoplasmic reticulum stress parameters such as Nrf۲, HO-۱, NQO۱, RAGE, NLRP۳, MAPK-۱۴, STAT۳, NF-κB, IL-۱β, TNF-α, PERK, IRE۱, ATF۶, and GRP۷۸ in OXL-induced testicular toxicity (P<۰.۰۰۱). Conclusion: Our results demonstrated that NRG can protect against OXL-induced testicular toxicity by enhancing the anti-oxidant defense system and suppressing apoptosis, inflammation, and endoplasmic reticulum stress.

کلمات کلیدی:

Apoptosis, Endoplasmic reticulum - stress, Inflammation, Naringin, Oxaliplatin, Testicular toxicity