

## Whey Protein: A Noval Protective Agent against Oto-Toxicity Induced by Cis-Platin in Male Rat

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**Abstract :** Background: Cis-platin is a widely used chemotherapeutic drug to treat many malignant disorders including head and neck malignancies. Oto-nephrotoxicity is an important and dose - limiting side effect of cis - platin therapy. Nowadays, more attention had been paid to oto-toxicity caused with cis-platin. Aim of the Work: This study was designed to investigate the potential protective effect of Whey protein (WP) against cis-platin induced ototoxicity compared to the effect of N-acetylcysteine (NAC) in rats. Methodology: Male albino rats were randomly divided into 6 groups: untreated rats (control), rats orally treated with whey protein (1g/kg b.w/day) for seven executive days, rats treated orally with N-acetylcysteine (500 mg/kgb.w /day) for seven executive days, rates intoxicated intraperitoneal (ip) with cis- platin (10 mg/kgb.w. once), rats treated with whey protein (1g/kgb.w./day) for seven executive days) followed by one injection (ip) of cis-platin(10 mg/kg b.w.) one hour after the last oral administration of whey protein, rats treated with N- acetylcysteine (for seven executive days followed by one injection (ip) of cis-platin (10 mg/kgb.w) one hour after the last oral administration of N-acetylcysteine. The organ of Corti, the stria vascularis and spiral ganglia were visualized by light microscopy at different magnifications. Results: Cis-platin intoxicated animals showed a significant decrease in serum level of total antioxidant capacity (TAC),with inhibition in the activity of serum glutathione-s transferase(GST) and paraoxonase-1 (PON-1) in comparison with control. Group treated with either NAC or WP with cis-platin showed significant elevation in the activity of both GST & PON-1 with increased serum level of TAC when compared with cis-platin intoxicated rats. Animals treated with NAC or WP with cis-platin compared to those treated with cis-platin alone showed marked degree of improvement towards control rats as there was significant drop in the serum level of cortecosterone, nitric oxide (NO), and melandialdehyde (MDA).Histopathologic, in NAC pretreated group there was no changes in stria vascularis or spiral ganglia. In group pretreated with WP, there was no histopathologic alteration detected in the organ of Corti and Reissers membrane but oedema and haemorrhage were founded in the stria vascularis in small focal manner. Conclusion: Our finding showed that Whey protein is a natural dietary supplement product proved its ability of protection of anti-oxidant system and the cochlea against cis-platin induced ototoxicity.

**Keywords :** anti-oxidant, cis-platin, N-acetylcysteine, ototoxicity, whey protein

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