
Poster

[P25-11] P25-11: Clinical toxicology (1)

Chair: Kenji Ikeda, Japan

Mon. Sep 25, 2017 12:30 PM - 1:30 PM Annex Hall (1F)

(Mon. Sep 25, 2017 12:30 PM - 1:30 PM Annex Hall)

[P25-11-5] Protective role of Sildenafil against carbon tetrachloride-induced nephrotoxicity by augmenting the availability of nitric oxide and antioxidant enzymes

Shubham Goyal¹, Pyarelal Sharma² (1.Baddi University of Emerging Sciences &Technology, 2.ISF college of Pharmacy)

Keywords: Nephrotoxicity, Antioxidant Enzymes, Carbon Tetra Chloride, TBARS, Glutathione

Background

Nephropathy is a leading cause of morbidity and mortality and is characterized by impaired renal function, glomerulosclerosis, and persistent albuminuria, declined glomerular filtration rate (GFR), elevated arterial blood pressure and fluid retention. Carbon tetrachloride (CCl₄) is a colorless, volatile and nonflammable liquid of industrial use and is known to cause hepatotoxicity and nephrotoxicity. The metabolic transformation of CCl₄ results in the generation of free radicals, resulting prominent changes in the morphology of the kidney, including tubulointerstitial fibrosis and vascular congestion.

Methods

Wistar albino rats of either sex (180-260g), n=6 were employed in present study. Nephrotoxicity was induced by administration of carbon tetrachloride (0.5 ml/kg, *s.c.*) for 28 days. Serum creatinine, BUN, urinary microprotein, TBARS, nitrite/nitrate and reduced glutathione estimations were done as hallmarks of renal functioning. Administration of CCl₄ induced prominent changes in morphology of kidney, including tubulointerstitial fibrosis and vascular congestion, increases in serum creatinine, BUN, urinary microproteins, and renal tissue TBARS levels in comparison to normal control. It also decreased reduced glutathione and tissue nitrite/nitrate levels.

Results

Sildenafil treatment (0.4 and 0.8 mg/kg) antagonized the effect of CCl₄ induced renal intoxication dose dependently. L-NAME treatment significantly reversed the effect of Sildenafil treatment.

Conclusions

Therefore, it may be concluded from above findings that CCl₄ administration caused marked renal damage. Sildenafil has protective effect in prevention of renal injury by increasing the availability of nitric oxide.