

- الملخص باللغة الانجليزية: -

- **"Lipoic Acid and Coenzyme Q10 Protect Against Lead-induced Toxicity in Rats with Metabolic Syndrome**

Abstract

Obesity may lead to Metabolic Syndrome (MS). The MS is often characterized by oxidative stress which contributes to cellular damage and dysfunction. Lead toxicity is a major health problem especially in obese individuals. Therefore the aim of the current study was to investigate the biochemical and cardiovascular effects caused by lead exposure in rats with metabolic syndrome and suggesting possible protective measures. The MS was induced by feeding rats with high fat diet and fructose in drinking water for 90 days. Matched normal group was used as a control. Rats with metabolic syndrome were allowed to drink water containing lead acetate for 30 days either alone, with alpha-Lipoic Acid (LA) or coenzyme Q10 (CoQ10). At the end of experiment, body weight, systolic blood pressure and heart rate were assessed. Creatinine and uric acid were also determined. Lipid profile, oxidative stress biomarkers, nitric oxide, TNF", calcium, insulin and glucose were determined. The exposure to lead worsens kidney function, oxidative stress and metabolic effects caused by metabolic syndrome. The use of LA or CoQ10 could ameliorate these harmful effects of lead. In conclusion, lead worsens the MS cases due to its ability to induce oxidative stress in rat tissues. The LA and CoQ10 beneficial effects could be attributed to their antioxidant capacity.