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Protective Effects of Alpha Lipoic Acid (α -LA) Against Lead Neuro-Toxicity in albino Rats

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Aim of the work: The present study was conducted to elucidate the possible protective effect of alpha lipoic acid (α -LA) against the deleterious effect perturbation induced in rat brain exposed to lead acetate. **Methods:** 32 Wistar male rats (weighing 130 ± 10 g) were divided into four groups (n=8): (1) normal control group (C); (2) Initiation group (Pb as lead acetate 20 mg/kg.b.wt, i.p. for 2 wks); (3) treatment group (α -LA 20 mg/kg.b.wt, i.p. for 3 wks); (4) post-initiation treatment group (Pb for 2 wks then followed by α -LA for 3 wks). Levels of monoamines (norepinephrine NE and dopamine DA), the level of Ache activity and finally adenosine triphosphate (ATP), were estimated in the hippocampus and cerebral cortex, in addition, a Morris water maze and the histological study were performed after completion of the experiments. **Results:** The results of the present work demonstrated that Pb inhibited neurotransmitters releases and decrease the level of Ache activity, as well as it inhibited energy production ATP. Pb impaired performance on Morris Water Maze of rats and histological degeneration. However, treatment with α -LA significantly attenuated the behavioral impairment and biochemical parameters in rat treated with Pb. And amelioration of histological changes. **Conclusion:** As a conclusion, treatment with α -LA can improve the Pb-induced toxicity via antioxidant activity.