

Original Paper

Effect of exercise program and Curcumin supplementation on serum level of immunoglobulin A in rats exposed to lead Acetate

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Abstract

Background and Objective: Lead as an environmental pollutant can damage the immune system. This study was done to determine the effect of moderate-intensity exercise and Curcumin supplement on serum level of immunoglobulin A in rats exposed to lead acetate.

Methods: In this experimental study, 46 male rats were allocated into six groups including; Control (C), vehicle (V), lead (L), lead and exercise (LE), lead and curcumin (LC), Lead+exercise+curcumin (LEC). Animals in training groups ran on treadmill for 8 weeks (25- 64 minutes per daily, 15-22 meter/minute and 0% grade). Animals in Lead, LE, LC and LEC groups were received lead acetate (20 mg/kg/bw) and vehicle animals were received ethyl oleat (30 mg/kg/bw) Intraperitoneally for 3 days per week for 8 weeks. Rats in curcumin and LEC groups were received Curcumin (30mg/kg/bw), for 3 day per week for 8 weeks. IgA level were measured by single radial immuno diffusion method.

Results: Lead acetate significantly increased MDA levels at $P < 0.05$ in animals. IgA level was 0.2, 0.41 and 0.47 mg/dL in Lead, LE and LEC groups ($P < 0.05$).

Conclusion: The simultaneous use of endurance exercise training and curcumin due to increased IgA activity has beneficial effects against lead poisoning.

Keywords: Lead acetate, Immunoglobulin A, Endurance training, Curcumin

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