

Evaluation of neurotoxic effects of lead acetat on rat radial nerve

M.Mehdizadeh (PhD)

Department of Anatomy
Iran University of Medical Sciences

F.Kermanian (MSc)

Department of Anatomy
Army University of medical sciences

G.Farjah (PhD)

Department of Anatomy
Oromieh University of Medical Sciences

PN.Tabatabaei (BSc)

Instructor of Electron microscopy of Iran
University

Corresponding Author:

M.Mehdizadeh

E-mail: maranaoo@iums.ac.ir

Abstract

Background&Objective: Lead toxicity is a common popular problem. Many researches were performed about this toxicity both in-vivo and in-vitro since 100 years ago. Those studies showed that lead have toxic effects such as behavioral disorders, decrease of IQ and decrease of learning and memory. Also lead has neurotoxic effects such as decrease of neuronal density in visual cortex of monkey, cell death in hippocampus and decrease of acetylcholin in rat's hippocampus. In this study we examin neurotoxic effects of lead on rat's radial nerve because radial nerve is a mix nerve.

Materials&Methods: 24 adult male rats were divided in six groups. Groups I and II received lead acetate 4% and 2%, groups III and IV received distilled water and normal water for one month. After this time, we killed rats and exposed radial nerve from behind of arm. Then studied them with light and electron microscopy.

Results: In experimental groups we saw decrease of myelin sheath diameter and decrease of nuclear density in schwann cell. Also we saw many granules in mitochondrial matrix, active macrophage, edema and disarrangement of myelin sheath layers.

Conclusion: We suggest that lead neuropathy is due to schwann cell injury and this lesion lead to decrease of myelin sheath.

Key Words: Myelin- Radial nerve- Lead (Pb)- Rat- Neurotoxicity