

**Title: Therapeutic Role of Mesenchymal Stem Cells
in Carbon Tetrachloride- Induced Hepatic
Pathogenesis in the Adult Male Albino Rat:
A Microscopic and Biochemical Study.**

Abstract

The aim of the present work is to evaluate the possible therapeutic role of intravenous administration of mesenchymal stem cells against CCL4-induced hepatotoxic changes. Hepatotoxicity was induced in this study by injection of carbon tetrachloride (CCl₄) subcutaneously at a dose of 0.2 ml/kg body weight twice weekly for four and eight week's durations. Another two groups were injected with CCl₄ for four and eight weeks then left to observe the effect of spontaneous recovery after four weeks. Bone marrow derived mesenchymal stem cells (MSC) were injected into the tail vein at a dose of 1×10^6 stem cells labeled with PKH26 dye in 1 ml phosphate buffer saline in two groups after injected with CCl₄ for four and eight weeks. Liver specimens were examined by both light and transmission electron microscopic methods. Different levels of liver enzymes (ALT, AST and GGT) were measured.

This study revealed that intravenous injection of MSC was more effective in rescuing liver failure than spontaneous recovery and could be used as a suitable line of therapy than liver transplantation in end-stage liver disease.