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## MESENCHYMAL STEM CELLS: *IN VIVO* THERAPEUTIC APPLICATION AMELIORATES CARBON TETRACHLORIDE INDUCED LIVER FIBROSIS IN RATS

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**Background:** Egypt has the highest prevalence of hepatitis C virus in the world with infection rate up to 60%, for which liver fibrosis or hepatic carcinoma is the final outcome. Stem cell therapy provides a new hope for hepatic repair instead of traditional treatment, liver transplantation, as it is safer, gives long term engraftment and avoid expensive immunosuppressive drugs and unexpected hazardous effects.

**Aim:** This work aimed at determining the therapeutic potential of mesenchymal stem cells (MSC) in hepatic repair as a new line of therapy for liver fibrosis.

**Methods:** Thirty three female albino rats were divided into three groups: Group I: 10 rats injected subcutaneously with olive oil, Group II: 13 rats injected with carbon tetrachloride (CCl<sub>4</sub>) and Group III: 10 rats injected with CCl<sub>4</sub> then bone marrow derived MSC from male rats. Blood and liver tissue samples were taken from all rats for biochemical and histological study.

**Results:** Liver functions for group II rats showed significant deterioration in response to CCl<sub>4</sub> in addition to significant histological changes in liver lobules and portal areas. Those parameters tend to be normal in MSC-treated group. Group III rats revealed normalized liver function and histological picture.

Meanwhile, most of the pathological lesions were still detected in rats of second group.

**Conclusions:** Undifferentiated MSCs have the ability to ameliorate CCl<sub>4</sub> induced liver injury in albino rats in terms of liver functions and histological features. So, stem cell therapy can be considered clinically to offer a hope for patients suffering from liver fibrosis.

### Biography

Nermin Raafat pursued her MD-PhD from University of Basel, Switzerland. She is currently an Assistant Professor of Medical Biochemistry and Molecular Biology at Zagazig University School of Medicine, Egypt. She is the Director of Molecular Biology and Cell Culture Lab in the Department; Head of Cell Culture Unit of Scientific and Medical Research Centre; Director of Project Management Unit; Admin of Institutional Review Board and a Member of Scientific Research Council at the same university. She has published more than 30 papers in reputed journals and has participated in more than 30 international conferences.

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