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Use of heterogeneous differentiated mesenchymal stem as a cirrhotic liver cell therapy of: A canine model experimental study

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Liver cirrhosis represents the final and the most common pathway of all chronic hepatic injury and is considered a worldwide health problem as liver slowly deteriorates and malfunctions and scar tissue replaces the healthy hepatocytes. The liver has the amazing potential to regenerate by its own hepatocytes when mild liver damage occurs but due to persistent and severe liver damage, hepatocytes no longer have the capacity to proliferate. Major advances have been made in the prevention, diagnosis and treatment of liver cirrhosis including liver transplantation and artificial liver. The ideas of complementing or replacing the damaged liver cells through cell-based therapies (stem cell) have been an extremely promising therapeutic agent for tissue regeneration in recent years. This study was applied on eighteen dogs as a model of cirrhotic liver treated with heterogeneous differentiated stem cells intraportal vein under ultrasonographic guidance. Induction of cirrhosis was carried out via the administration of carbon tetrachloride (CCl₄). Dogs were divided into two groups, Group-1: CCl₄ with non MSCs treatment and Group-2: CCl₄ with MSCs treatment. Liver function was assessed by determination of liver function tests, hepatic ultrasonography with measuring of portal and hepatic veins diameters and finally liver biopsy. Liver function tests, hepatic ultrasonography, portal and hepatic veins diameter and histopathological properties demonstrated that hepatic cirrhosis was successfully established in dogs. After stem cells transplanted, there was a significant reversal in liver function tests, ultrasound findings, histopathological properties and portal and hepatic veins diameter ($P < 0.05$).

Biography

Marwa Hamdi El-Khashab completed her Bachelor of Veterinary Medicine, Cairo University in 2008. She worked as a Demonstrator at Surgery, Anesthesiology and Radiology Department at Faculty of Veterinary Medicine, Cairo University in 2009. She has completed her Masters in 2012. Currently she is pursuing Doctoral and the title of Doctoral thesis is "Treatment of induced partial hepatic cirrhosis in experimental animal model using differentiated stem cells".

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