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Adult Dental Pulp Mscs: Safety and Efficacy in Chemically-Induced Hyperglycemic Rats

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The aim of the present study was to compare the effects of adult dental pulp mesenchymal stem cells (DPSCs) transplantation into the diabetic rats with hyperglycemia. DPSCs were isolated and identified by flow cytometry. Rats with streptozocin induced diabetes to obtain a rat model of hyperglycemia, followed by transplantation of DPSCs into the intramuscularly. After starting the treatment, the blood glucose and body weight of animals were measured, the section of animal tissue were observed following hematoxylin and eosin (H&E) staining for histopathological significance. The cellular ultrastructure was examined by transmission electron microscopy. The result of blood glucose and body weight was demonstrated that there were no significant differences in blood glucose levels and body weight were observed. The H&E staining results demonstrated that the DPSCs have effect like regeneration of the pancreas. Transmission electron microscopy examination revealed that the ultrastructure of the tissues in the DPSCs treated group was not show any abnormality of pathological significance compared with that in the diabetic model group. In conclusion, DPSCs were found to be safe in the hyperglycemia.

Keywords: Mesenchymal Stem Cells, Adult dental pulp stem cells (DPSCs), Hyperglycemia, Safety

Biography:

I am a Clinical Pharmacist with PhD in Pharmaceutical Sciences. Along with academic profile I am involved in various preclinical and clinical projects. Currently I am working on projects such as development of vaccine for type 1 diabetes mellitus, clinical trial for anti-obesity formulation, clinical evaluation of possible causes and complications of type 1 diabetes mellitus, pre-clinical study on application of stem cells in diabetes mellitus and in diabetic wound, pre-clinical study on application of stem cells in pancreatic transplantation in type 1 diabetes mellitus. I have publications in national and international journals indexed in Scopus and Web of Science.