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## Insulin gene expression in treated diabetic rats with mesenchymal stem cells

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**Aim:** The study was conducted to evaluate the ability of BMSC to repair the degenerated beta cells of the pancreas in induced diabetic rat model.

**Material & Methods:** The present study was conducted on 60 adult female Sprague Dawley rats weighing 150-200 gm, divided into three groups; the first group infused with physiological saline (normal), the 2<sup>nd</sup> group subjected to single STZ (65 mg/kg i.p.), the 3rd group infused with two successive doses of MSC ( $2.5 \times 10^6$ ) in the tail vein after induction of diabetic model with interval period of 21 days). The blood glucose level estimated weekly by glucometer for one month, the oxidative stress (GSH & MDA) and the insulin gene expression evaluated at the end of the study. In addition to the histopathological alteration and immunohistochemical reaction for insulin was applied to the pancreatic tissue.

**Results:** The blood glucose level reduced in the treated group with time till reach its acceptable level while in the diabetic group the glucose level was significantly increased. The GSH was significantly enhanced in treated group while the MDA significantly decreased compared to diabetic model. The treated group showed increased expression of the insulin gene compared to the control positive group. The immunohistochemical analysis for insulin showing increased number and size of pancreatic islets in treated group compared to the control positive one.

**Conclusion:** The twice injection of BMSC can restore the normal beta cells morphology and function.

### Biography

Hamdy Rezk is currently working as a Lecturer at Department of Anatomy & Embryology, Faculty of Veterinary Medicine of Cairo University, Egypt.

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