



POSTER

Autologous and allogeneic transplantation of adipose derived stem cells have similar effects for type 1 diabetes mellitus treatment in mouse models

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Abstract

Background: Type 1 diabetes mellitus (T1D) disease is caused by lesions or dysfunction of beta cells of pancreatic islets, causing less insulin to be secreted into the blood and thereby increasing glucose levels in the blood. In this study, we evaluated and compared the efficiency of treatment for T1D using autograft and allograft adipose-derived stem cells (ADSCs).

Methods: ADSCs were collected from the belly of mice before they were injected using a single dose of streptozotocin (100 mg/kg) to induce T1D. T1D mice were intravenously injected with a dose of 2×10^6 ADSCs into the tail vein. Therapeutic efficacy was assessed by survival rate, blood glucose levels, serum insulin levels, histology and immunohistochemistry of pancreatic islets.

Results: The results showed that both autograft and allograft transplantation of ADSCs demonstrated similarities in mortality rate, blood glucose level, blood insulin level, quantity and size of pancreatic islets. Both transplantations significantly improved T1D mice, which showed a decrease in mortality rate as well as blood glucose level, and increases in blood insulin level, quantity and size of pancreatic islets.

Conclusion: The similar results suggest that both autologous and allogeneic transplantations of ADSCs are promising therapy for T1D treatment.

Keywords

Type 1 diabetes mellitus, adipose-derived stem cells, allograft, autograft, mice

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References

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