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INTRAPANCREATIC AUTOLOGOUS BONE MARROW-DERIVED MONONUCLEAR CELLS FOR DIABETES TYPE 1

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Background: Type1 diabetes (T1D) is an autoimmune destruction of islet β-cell. Recent studies have shown that cell therapy is promising.

Objective: To study safety and efficacy of direct transgastric intrapancreatic (DTI) transplantation of Autologous Bone Marrow-Derived Mononuclear Cells (A-BMMNCs) as a potential treatment for Egyptian patients with T1D.

Method: 17 patients between 2 and 30 years were assigned to receive a single treatment of A-BMMNCs through DTI-transplantation and follow up for 1 year. Main outcome is to assess safety. Then, measure fasting and postprandial 2-hour C-Peptide levels (FCP, 2h-CP) , glycated hemoglobin (HbA1C), and insulin and islet cell antibody if serologically positive to assess β-cell function.

Results: Islet cell antibody was undetectable before the transplantation for all patients. 6 out of 10 positive patients convert to negative insulin antibody within one year; remaining patients were negative insulin antibody. FCP significantly rise up in the first 2 months, little change in 2h-CP, decrease HbA1C and insulin doses until the first 5 months post-transplant in compared with before ($P \leq 0.05$). No complications were recorded until complete the study for all patients.

Conclusion: A-BMMNCs by DTI technique is a simple and safe innovative procedure. It can temporarily modify course of T1D. It could be beneficial in the future as a treatment modality to control the progression and it may open a new way to cure diabetes.