Establishment of the treatment for insulin dependent diabetes mellitus by the living donor islet transplantation with regenerative medicine

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【Outline of survey】

The purpose of this study is establishing the treatment of insulin dependent diabetes mellitus by the living donor islet transplantation with regenerative medicine. We performed the world first success case of the living donor islet transplantation in Japan, which has been widely announced all over the world.

In order to promote the living donor islet transplantation into a routine treatment, there are several tasks. The first task is the improving donor safety, the second task is enhancing the efficacy of islet transplantation and the final task is developing the immunosuppressive therapy for islet survival and regeneration.

To address the first task, we will explore the laparoscopic living donor pancreatectomy and regeneration of donor pancreas. For the second task, we will examine anti-apoptotic and anti-oxidative treatment and/or induction of regeneration of beta cells. For the third task, we will try new immunosuppressive regimen especially silorimus free regimen since silorimus has a potent anti-regenerative property.

At the end of this research, we believe the living donor islet transplantation with regenerative medicine will become the option for the treatment of insulin dependent diabetes mellitus.

【Expected results】

At first, after confirming donor safety, the living donor islet transplantation will become one of the options for brittle type insulin dependent diabetes mellitus. Improving results of the living donor islet transplantation due to these researches will make this treatment as a routine therapy. In other words, diabetes mellitus will become a curable disease instead of controllable disease with advanced medicine.

On the other hand, our group has already been a member of Diabetes Research Institute Federation which consists of top islet transplant institutes. This project should enhance our contribution about the new type of islet transplantation with regenerative medicine all over the world.

【References by the principal researcher】

1. Matsumoto S, Okitsu T, Iwanaga Y, et al. Insulin independence after living-donor distal pancreatectomy and islet allotransplantation. Lancet. 2005 May 7-13;365(9471):1642-4.
2. Matsumoto S, Noguchi H, Ricordi C et al. Pancreatic islet transplantation for treating diabetes. Expert Opin Biol Ther. 2006 Jan;6(1):23-37.

【Term of project】 FY2006－2010	【Budget allocation】22,500,000 yen

【Homepage address】 http://islet.eriko.com/