INTERNATIONAL SUMMIT ON DIABETES, ENDOCRINOLOGY, AND METABOLIC DISORDERS

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Islet transplantation: current limitations and challenges for successful outcomes

Abstract:
Islet transplantation is a promising approach for treating patients with unstable T1DM. However, it is confronted with numerous obstacles throughout the various stages of the transplantation procedure. Significant progress has been made over the last 25 years in understanding the mechanisms behind the loss of functional islet mass and in developing protective strategies. Nevertheless, at present, 2 to 3 pancreases are still needed to treat a single patient, which limits the maximal number of patients who can benefit from islet transplantation. Throughout this lecture, we aim to provide an overview of recent findings on the deleterious mechanisms affecting pancreatic islet quality during the isolation process, and to present proposals to address these issues. Additionally, we discusse challenges and potential solutions for transplanted islets. This allowed us to appreciate the numerous complications that pancreatic islets face during the various stages of transplantation. As a result, there is still a great deal of work to be done to protect the functional mass of islets and reduce the number of pancreases needed for a single patient. Moreover, the standardization of the complete procedure between the different centers remains one of the key issues to be solve in order to optimize the success of the islet transplantation. However, the remarkable scientific advancements in the past few years in understanding these deleterious pathways have enabled the identification of numerous targets for action and the establishment of various strategies (genetic, pharmacological, organoid, encapsulation, stem cells), all of which are equally promising. Ultimately, these advances bring the hope of being able to propose pancreatic islets transplantation to a maximum of patients living with T1DM in the near future.

Keywords: Islet transplantation, ischemia, inflammation, immunosuppression, IBMIR, revascularization.-term functional mass of pancreatic β-cells.

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Biography:

Dr Allan LANGLOIS is associate laboratory director at the European Centre for the Study of Diabetes. Throughout his career, he has been interested in understanding insulin secretion mechanisms, in particular insulin granules trafficking, in order to develop protective strategies to prevent β-cell destruction and dysfunction. Indeed, the preservation of a physiological insulin secretion by protecting pancreatic β-cells is the major challenge to prevent and treat diabetes. In this context, Dr Allan LANGLOIS is also invested in pancreatic islet transplantation therapeutic strategy for T1DM, to develop solutions to maintain a long

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