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Current Perspectives in Diabetes and Transplantation

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Diabetes mellitus is a chronic disease associated with high cardiovascular morbidity and mortality. In patients undergoing solid transplantation post-transplant diabetes has been reported to occur in up to 40% of the transplant recipients, affecting graft functions and survival. At the same time, in selected patients with pre-existing type 1 diabetes, pancreas or islet transplantation represent a suitable strategies for restoring endogenous insulin secretion. Thus, diabetes and transplantation have a complex interplay. For some patients the occurrence of post-transplant diabetes it's a complication of the transplantation, while for others, islet or pancreas transplantation represents the cure for diabetes. In this special issue of Current Diabetes Reviews world-renowned experts in the field of diabetes and transplantation give an update about this multifaceted area of clinical research and management. Dr. Yates addresses the role of prediction and diagnosis of post-transplant diabetes. The assessment of specific risk factors and the development of new risk models can improve disease prediction, while screening for glucose abnormalities pre- and post-transplantation allows early diagnosis. Drs. Montero and Pascual report about current immunosuppressive regimens used in transplant settings, while Dr. Sharif illustrates current treatments. Immunosuppression represents a major modifiable risk factor for development of post-transplant diabetes but this can't overcome the choice of the best regimen for graft survival and patient well-being. Therefore post-transplant diabetes is a common condition requiring instauration of proper therapies. Therapeutic options rely on oral and insulin therapy with close follow-up and reassessment, while the role of the more recent antidiabetic agents is still under investigation. In this context clinical trials testing new treatment options for this population are needed. Islet or pancreas transplants with type 1 diabetes face additional hurdles. In fact, as reported by Dr. Monti and colleagues, reactivation of humoral and cell-mediated autoimmunity can result in diabetes recurrence and reintroduction of insulin therapy. The use of biomaterials, described by Dr. Stabler and colleagues, which may modulate cellular responses through tissue engineering represents a promising alternative for protecting and prolonging islets function and survival. While the editorial clearly highlights that new knowledge relevant to transplantation and diabetes has been generated, it also clearly outlines that interdisciplinary efforts will be needed to translate the new scientific discoveries to health care outcomes.

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