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Post-transplant diabetes mellitus in kidney transplant recipients

Hind Hassan Al Nour
Dubai Hospital, UAE

Post-transplantation diabetes mellitus (PTDM), also known as new-onset diabetes mellitus after kidney transplantation (NODAT), occurs in 10-15% of renal transplant recipients and is associated with cardiovascular disease and reduced lifespan. It is considered one of the major complications in kidney transplant recipients and has associated with reduced patient and graft survival. In the majority of cases, PTDM is characterized by β-cell dysfunction, as well as reduced insulin sensitivity in liver, muscle and adipose tissue. Multiple risk factors contributes to the development of post-transplant diabetes including: (1) Immunosuppression medications notably steroids and calcineurin inhibitors (Tacrolimus confers greater risk) also Sirolimus have been associated with greater risk of post-transplant diabetes mellitus, (2) Age higher in recipients with age more than 40 years, (3) Family history of diabetes mellitus, (4) Greater risk in patients with metabolic syndrome (hyperuricemia, hypertriglyceridemia and hypertension) and (5) Recipients of graft from deceased donor. Multiple strategies have been adopted for reducing incidence of post-transplant diabetes mellitus, dietary changes and increase physical activity are the cornerstone of such strategies. Modification of immunosuppression, as for steroid sparing protocols and withdrawal of steroids few days after transplantation have been associated with lower incidence of post-transplant diabetes mellitus only in patients receiving cyclosporine compared to Tacrolimus. Induction with Belatacept has also been associated with less incidence of diabetes mellitus compared with cyclosporine. Evidence-based treatment regimens used in patients with type-2 diabetes mellitus cannot be directly implemented in patients with PTDM. Studies investigating the latest drugs are required to direct the development of improved treatment strategies for patients with PTDM. Glucose-lowering therapy must be compatible with immunosuppressant agents, reduced glomerular filtration rate (GFR) and severe arteriosclerosis. Such therapy should not place the patient at risk by inducing hypoglycemic episodes or exacerbating renal function owing to adverse gastrointestinal effects with hypovolemia. First-generation and second-generation sulphonylureas are generally avoided and caution is currently advocated for the use of metformin in patients with GFR <60 ml/min/1.73 m^2. DPP-4 inhibitors do not interact with immunosuppressant drugs and have demonstrated safety in small clinical trials.

Biography

Hind Hassan Al Nour is a Senior Nephrologist in the Renal Unit of Dubai Hospital, Dubai Health Authority since 1998 to till date. She has received her Medical Bachelor's degree from Dubai Medical College and completed her Residency in Internal Medicine and Nephrology in Dubai, UAE. She has obtained her MRCP (UK) in 2008 and attended several nephrology courses and conferences including Nephrology course in Harvard Medical School in 2013. She has special interest in educating medical students of Dubai Medical College. She has different publications and clinical research in many international journals.

hhalnour@yahoo.com

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