With Type 2 Diabetes

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Diabetic kidney disease (DKD), a devastating complication of diabetes, is one of the leading causes of end stage kidney disease (ESKD). Kidney transplantation provides superior outcomes for ESKD patients with type 2 diabetes, giving opportunities to be free from dialysis, but needs lifetime immunosuppressive medications to avoid graft kidney rejection. Post-transplant hyperglycemia, however, remains to be unsolved, because immunosuppressive agents, including glucocorticoids and calcineurin inhibitors, may result in impaired insulin secretion and sensitivity. Safe and promising anti-diabetic strategy is long-awaited among kidney transplant recipients (KTRs) with type 2 diabetes. Enormous evidence has accumulated that Glucagon-like peptide 1 (GLP-1) receptor agonists have potential to maintain kidney function as well as improve glucose tolerance in patients with DKD. The present study was designed to elucidate the association between GLP-1 receptor agonist use and better graft kidney function in KTRs with type 2 diabetes. Among KTRs with type 2 diabetes between 2012 and 2019, 73 with GLP-1 receptor agonist use and 73 without GLP-1 receptor use were identified in our center. After propensity matching, 50 KTRs were newly initiated with GLP-1 receptor agonist use or other antidiabetic medications. Baseline characteristics were well-balanced in the 2 groups. KTRs with GLP-1 receptor agonist use had greater kidney function 12 months after initiation of GLP-1 receptor agonists, compared to their counterpart KTRs without GLP-1 receptor agonists, according to estimated glomerular filtration ratio (p=0.01). Interestingly, transient decrease of body mass index was observed in KTRs with GLP-1 receptor agonist use during the 12 months. All GLP-1 receptor agonist-initiated KTRs were followed up through December 31, 2019. In conclusion, GLP-1 receptor agonist treatment was associated with better graft kidney function in KTRs with type 2 diabetes. Pharmacological GLP-1 receptor activation showed favorable tolerability and may alleviate graft kidney damage in KTRs with type 2 diabetes.

Diabetes Mellitus and Glucose Metabolism

DIABETES COMPLICATIONS AND COMORBIDITIES

An Open-Access Platform for Translating Diabetes and Cardiometabolic Disease Genetics Into Accessible Knowledge

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Most associations from genome-wide association studies (GWAS) result from as-yet-unknown alterations of molecular or cellular function; the causal variants and effector genes responsible for them, and the tissues and pathways through which they act, remain largely unknown. Thousands of associated loci have now been identified for each common disease and its related traits. In order to translate GWAS data into biological knowledge, they must be integrated with functional genomic annotations reflecting tissue-specific regulation and with the results of bioinformatic methods that predict the functional effects of associations. However, these data types are typically spread across disparate resources, and working with them requires bioinformatic expertise.

To make these results accessible and understandable to the broader diabetes and cardiometabolic disease research communities, we have developed the open-access Common Metabolic Diseases Knowledge Portal (CMDKP; cmdkp.org), which brings together a robust software and data storage platform with a streamlined and intuitive user interface for four disease areas: diabetes (both types 1 and 2); cardiovascular disease; cerebrovascular disease; and sleep and circadian disorders.

The CMDKP enables researchers to access and explore a comprehensive matrix of genetic, genomic, and computational results. It includes 3 classes of genomic data: 1) GWAS summary statistics from the most current and authoritative datasets available, as identified by disease-area experts; 2) functional genomic annotations, such as chromatin accessibility, that reflect the tissue-specific regulatory potential of genomic regions; and 3) the results of bioinformatic methods applied to these aggregated data (for example, overlap-aware meta-analysis to determine "bottom-line" p-values, the GREGOR method for determining tissue-specific enrichment of genetic associations, the MAGMA method for generating gene-level association scores, and more). All of these data types are integrated and accessible via interactive tools that allow researchers to explore and evaluate the data in order to identify candidate disease effector genes for further research. The CMDKP provides researchers with the data and tools necessary to translate genetic associations and functional annotations into knowledge about disease mechanisms and potential therapeutic targets.

Diabetes Mellitus and Glucose Metabolism

DIABETES COMPLICATIONS AND COMORBIDITIES

Association Between Metformin and Prevention of Dementia in T2DM Adult Patients

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Introduction: In 2020 the World Health Organization estimated that the number of people with dementia was 50 million in the world. Furthermore, it is expected about 10 million new cases every year. Alzheimer's disease (AD) is