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Commentary

The Association of Chronic Kidney Disease and Dialysis Treatment in Diabetic Patients

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DESCRIPTION

Chronic Kidney Disease (CKD) affects millions of people globally. CKD is becoming a major public health issue due to rising morbidity and mortality. Patients with end-stage chronic renal disease frequently require a kidney transplant. Patients with chronic kidney disease are at a higher risk of developing cardiovascular disease and progressing to end-stage renal failure. Dialysis or transplantation is used to treat end-stage renal failure. Diabetes is one of the most significant risk factors for CKD.

Diabetic patients with chronic kidney disease have an even higher risk of cardiovascular disease, placing them in the highest risk group for cardiovascular disease. Diabetic people with microalbuminuria are twice as likely as those with normoalbuminuria to develop cardiovascular disease. Proteinuria and reduced Glomerular Filtration Rate (GFR) work together to raise cardiovascular risk. Before their chronic kidney disease progresses to end stage kidney failure, the majority of diabetic people with CKD stage 3 will experience a significant cardiovascular event, possibly deadly. Diabetic individuals require complex therapy for metabolic issues as well as related comorbidities. They must treat hypertension, dyslipidaemia, bone disease, anaemia, and often established Cardio Vascular Disease (CVD) intensively. Thus, the dilemma of selecting an effective antidiabetic medication for patients with diabetes and CKD is common in everyday clinical practice. Diabetes and CKD management are best served when the health-care system model of care includes a multidisciplinary team to support patients, which comprises the patient, physician (or other care provider), and other health-care specialists.

Glycemic management is critical for delaying the start of diabetes complications, and it can be difficult for even the most experienced clinician. Controlling blood sugar levels in people with CKD adds another layer of complexity. It necessitates in-depth knowledge of which drugs can be administered safely and how kidney illness impacts the metabolism of these medications. Furthermore, the glycemic target must be administered to each patient, recognizing that our ability to evaluate data can be impaired in the presence of kidney disease. Treatment includes.

Metformin

It raises insulin sensitivity and lowers hepatic gluconeogenesis; it does not produce hypoglycemia and, in certain patients, may result in weight loss. It lowers A1c by 1.0%-2.0%. Diarrhoea, bloating, and cramps are the most prevalent adverse effects. Long-term use has been linked to vitamin B12 insufficiency.

Sulfonylureas

They binds to the sulfonylurea receptor on pancreatic beta-cells, resulting in enhanced insulin production. They commonly reduce A1c by 1.5%-2% and can result in hypoglycemia. Sulfonylureas of the first generation are rarely recommended. Glipizide, glimepiride, glyburide, and gliclazide are examples of second-generation sulfonylureas. Thiazolidinediones (pioglitazone, rosiglitazone) work as PPAR agonists to enhance insulin sensitivity. They do not cause hypoglycemia and result in a 0.5%-1.4% drop in A1c. They are processed by the liver and can be utilized in the treatment of CKD. Fluid retention, on the other hand, is a severe limiting adverse effect, and they should not be used in advanced heart failure. This also limits its use in CKD patients, particularly those on dialysis. They have been associated to increased fracture rates and bone loss, thus they should be avoided in patients with underlying bone disease.

There are a few oral medications that can be administered safely in dialysis patients, especially if the diabetes is modest. Most others, on the other hand, will require insulin for glycemic management. Patients undergoing Hemo Dialysis (HD) may have varying insulin clearance rates, which may be influenced by the time of dialysis. We performed continuous glucose monitoring on patients undergoing HD and discovered that their glycemic responses during HD are extremely variable, and their insulin regimens must be tailored to avoid both hyper- and hypoglycemia during and after HD. Patients on Peritoneal Dialysis (PD) are exposed to high levels of glucose in the dialysate, which can result in uncontrolled hyperglycemia. A typical basal/bolus insulin regimen is recommended for individuals receiving PD on a continuous basis.

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