Commentary

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Evidence-Based Nursing Practice of Hemodialysis induce Hypoglycemia in a Diabetic Kidney Disease Patient

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Abstract

The primary goal of optimizing glycemic control to reduce the development of microvascular and macrovascular complications is universal. The medication regimen is based on the comfort of the patient and physician and should be individualized, especially as renal function changes.

For those who need insulin, MDI with an average of 4 daily injections is common. The closest approximation of physiologic insulin secretion can be achieved with an insulin pump delivering a continuous subcutaneous infusion. A single type of insulin is used in the pump such as a rapid-acting analog that serves as the basal, bolus and correction insulin. Insulin pumps require vigilance on the part of the patient and their use should be overseen by endocrinologists and experienced diabetes educators.

Introduction

Continuous Glucose Monitoring Systems (CGMS) are available that can continually measure glucose levels. A small plastic catheter is inserted subcutaneously and measures glucose every 5 min. Patients can view this in real-time and detect upward and downward trends in glucose. The added benefit is that alarms for high and low readings can be set.

The presence of microalbuminuria, albuminuria and declining GFR are all known predictors of CVD. The combination of diabetes and CKD is particularly powerful in regards to CVD risk, necessitating aggressive control of risk factors. In addition to hypertension, dyslipidemia and weight control should be addressed. Nutrition plays an important role in individuals with diabetic kidney disease as a balance of multiple dietary factors including sodium, potassium, phosphorus, and protein intake must be followed as well as intake of carbohydrates and unhealthy fats.

Reduction in weight in patients who are overweight or obese and increases in exercise are generally recommended, keeping in mind the need for cardiac stress testing.

It is helpful to use an experienced dietician and certified diabetes educator to safely attain dietary, exercise and weight loss goals. The KDIGO Controversies Conference addresses some of the issues surrounding diabetic kidney disease management including management of dyslipidemia and blood pressure control. The American Diabetes Association also has recommendations on management of blood pressure and dyslipidemia. Blood glucose level repeated again, and it was 315 mg/dl. A single type of insulin is used in the pump such as a rapid-acting analog that serves as the basal, bolus and correction insulin. Insulin pumps require vigilance on the part of the patient and their use should be overseen by endocrinologists and experienced diabetes educators.

Glycemic control in CKD

Glycemic control is essential to delay the onset of complications from diabetes, and it can be challenging for even the most experienced physician. Blood sugar control in those with CKD adds another level of complexity. It requires detailed knowledge of which medications can be safely used and how kidney disease affects metabolism of these medications. In addition, the glycemic target needs to be individualized for each patient, acknowledging that our ability to interpret the data can be altered in the setting of kidney disease.

Glycemic goal in CKD

Lower A1c levels are associated with higher risk of hypoglycemia which necessitates tailored A1c targets for different individuals. Consequences of hypoglycemia, which in turn can cause injury,myocardial infarction, seizure, stroke or death, are greatest in those who are frail and elderly, with erratic eating habits, on insulin and sulfonylureas, and with CKD. Higher A1c targets should be considered for those with shortened life expectancies, a known history of severe hypoglycemia or hypoglycemia unawareness, CKD, as well as in children.

The Controversies Conference on Diabetic Kidney Disease (DKD) held by KDIGO addressed a number of issues surrounding DKD, including appropriate glycemic control targets. There are insufficient data and trials regarding the ideal glucose target in patients with CKD stage 3 or worse. One study showed that A1c levels >9 % and < 6.5 % were associated with increased mortality in the presence of non-dialysis dependent CKD stage 3 or worse. ESRD patients with diabetes benefit from maintaining their A1c between 7–8 %, as A1c levels above 8 % or below 7 % carry increased risks of all-cause and cardiovascular death. A recent observational study found patients who started dialysis at a younger age (<60 years old) had poorer survival with A1c >8.5 % (HR 1.5 compared to those with A1c 6.5–7.4 %); there was no difference in older patients .

Objective

To provide evidence-based care for patients with hypoglycemia in the treatment of hemodialysis of diabetic nephropathy.

Methods

According to the principle of evidence-based medicine, the evidence-based problem is constructed for patient synopsis, and the Cochrane Library, PUBMED, EMBASE, OVID database, Chinese biomedical literature database, Chinese journal full-text database, and Wanfang and Weipu database are fully searched to obtain and evaluate the relevant clinical guidelines, System evaluation/meta analysis and large sample randomized controlled trial evidence. Results After retrieval, 2 were included in the systematic evaluation, 1 single-blind RCT, 1 semi-randomized controlled experiment, 1 study of prospective cohorts, and 3 case-controlled studies. According to the evidence results, combined with clinical experience and the patient and the wishes of the family to develop evidence-based care program for the patient, the patient's blood sugar can be restored to normal levels.

Conclusion

Using evidence-based medical method stoical medicine method, using high-quality evidence to make optimal nursing decision-making for patients' specific clinical problems, it can help patients to reduce their pain and obtain better treatment results.