

Glycemic patterns and factors associated with post-hemodialysis hyperglycemia among end-stage renal disease patients undergoing maintenance hemodialysis

ABSTRACT

Introduction: Chronic and post-prandial hyperglycemia are independent risk factors for diabetic complications. Glycemic patterns among hemodialysis end-stage-renal-disease (ESRD) differ as glucose metabolism changes with declining kidney function with more pronounced glycemic fluctuations. The objectives of this study are to determine glycemic patterns on hemodialysis days, the magnitude of post-hemodialysis rebound hyperglycemia (PHH) and their associated factors. **Methodology:** 148 patients on hemodialysis were analysed, 91 patients had end-stage-diabetic-renal disease (DM-ESRD), and 57 patients had end-stage-non-diabetic renal disease (NDM-ESRD). Glycemic patterns and PHH data were obtained from 11-point and 7-point self-monitoring blood glucose (SMBG) profiles on hemodialysis and non-hemodialysis days. PHH and its associated factors were analysed with logistic regression. **Results:** Mean blood glucose on hemodialysis days was 9.33 [SD 2.7] mmol/L in DM-ESRD patients compared to 6.07 [SD 0.85] mmol/L in those with NDM-ESRD ($p<0.001$). PHH occurred in 70% of patients and was more pronounced in DM-ESRD compared to NDM-ESRD patients (72.5% vs 27.5%; OR 4.5). Asymptomatic hypoglycemia was observed in 18% of patients. DM-ESRD, older age, previous IHD, obesity, high HbA1c, elevated highly-sensitive CRP and low albumin were associated with PHH. **Conclusion:** DM-ESRD patients experienced significant PHH in our cohort. Other associated factors include older age, previous IHD, obesity, high HbA1c, elevated hs-CRP and low albumin.

Keyword: Renal dialysis; Glycemic variability; Diabetes complications; Hyperglycemia; Risk factors; Asians