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Glucose intolerance is a predictor of morbidity and long-term mortality in non-diabetic (NDM) hemodialysis (HD) patients (pts)

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Insulin resistance and hyperinsulinemia are known concomitants of chronic kidney disease (CKD) irrespective of the type of renal disease. In a substantial number of non-diabetic dialysis patients, levels of glycemic index markers are elevated above "normal" non-diabetic values. Serum fructosamine (SF), including glycated albumin, have been evaluated as superior markers of glycemic control to HbA1c (A1c) in this population. We have reported that SF, but not A1c, is associated with infection and hospitalization in DM HD pts (KI, 2010). Association between degree of glucose intolerance in NDM HD pts and outcomes has not been investigated. We enrolled sixty NDM (A1c ≤5.6%, no history DM), measured SF (corrected for albumin, AlbSF), and followed them for up to 6 years. Data were analyzed by SPSS software. Mean age was 54±16 (SD) yrs, and 52% were female. The majority (78%) were of African descent. Mean A1c was 5.1% (range, 4.4-5.6). Seventy five per cent had SF above normal range (normal 265 μmol/L; mean, 285; range 187-378). A1c was not associated with morbidity or mortality during 2 and 5 years of observation. AlbSF, on the other hand, was correlated with frequency ($p<0.001$) and duration of hospitalization ($p<.03$) over both periods of observation. In addition, univariate Cox regression analysis revealed that AlbSF was associated with increased mortality risk. In Cox's multivariate analysis, after adjusting for age, gender, and dialysis vintage, AlbSF remained a significant independent mortality predictor for both 2 years (Relative Risk 1.01, $p=0.003$) and 5 years (Relative Risk 1.007. $p=0.004$) observation. Therefore for each μmol/g increase in AlbSF, there was a 1% and 0.7% greater relative mortality risk over 2 and 5 years, respectively. In conclusion, severity of glucose intolerance in NDM HD pts, as measured by AlbSF, is highly associated with interim and long-term outcomes. These results need to be confirmed in large prospective trials, including therapeutic interventions aiming to normalize or reduce SF levels.

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