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The association of glycemic control with patient survival and technique survival in incident diabetic peritoneal dialysis patients

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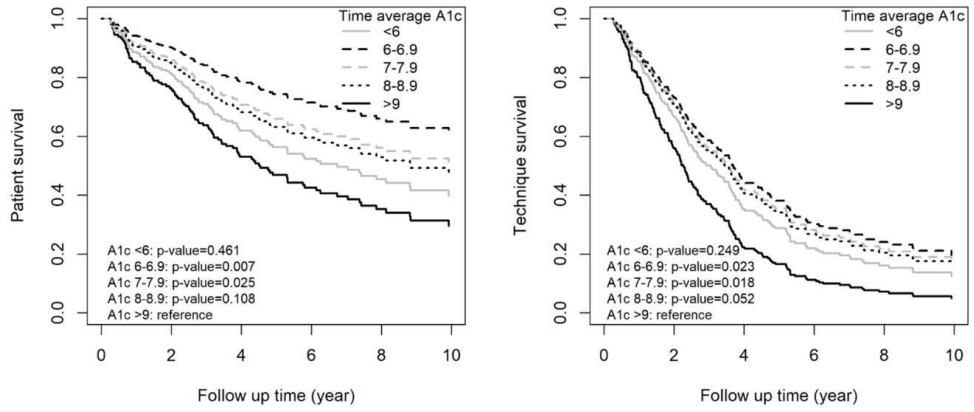
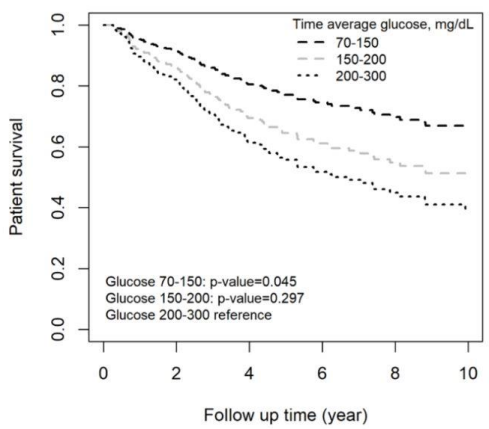
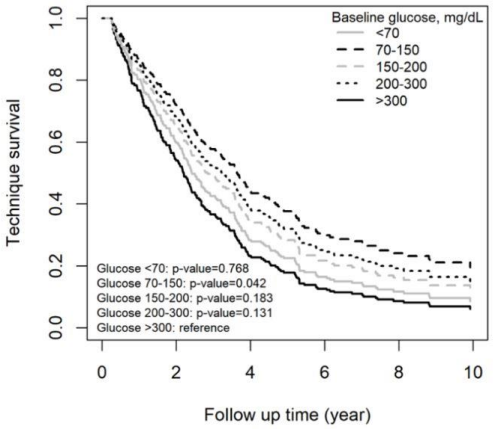
Objectives : Suboptimal glycemic control in diabetic patients would lead to disease progression, increase of complications and also, poor peritoneal dialysis (PD) outcomes. We aim to explore the prognostic significance of glycemic control in diabetic peritoneal dialysis (PD) patients.
Methods : We included 259 diabetic end-stage kidney disease patients starting peritoneal dialysis from 2007 to 2016, assessing mortality and technique failure risks through chart review until 2018.
Results : Relative to time-average A1c levels above 9%, patients with A1c levels between 6-6.9% (adjusted hazard ratio [HR] = 0.39; 95% confidence interval [CI] = 0.20, 0.78) and 7-7.9% (adjusted HR = 0.47; 95% CI = 0.24, 0.91) had a lower risk of mortality. Similarly, the risk of technique failure was lower for patients with average A1c levels between 6-6.9% (adjusted HR = 0.55; 95% CI = 0.33, 0.92) and 7-7.9% (adjusted HR = 0.53; 95% CI = 0.31, 0.90) compared to those with average A1c levels ≥ 9%. Surprisingly, patients with time-average A1c levels less than 6% showed no difference of mortality or technique failure rate from A1c levels above 9%. Patients with baseline fasting serum glucose levels between 70-150 mg/dL had a lower risk of technique failure (adjusted HR = 0.48; 95% CI = 0.24, 0.97) compared to those with levels > 300 mg/dL. Additionally, patients with average fasting serum glucose levels between 70-150 mg/dL had a lower risk of mortality (adjusted HR = 0.53; 95% CI = 0.29, 0.99) compared to those with levels between 200-300 mg/dL.
Conclusions : Diabetic PD patients maintained an time-average HbA1c of 6-8% or fasting serum glucose levels between 70-150 mg/dL, as well as those with a baseline fasting serum glucose level in the same range, experienced lower risks of mortality and technique failure.

Time-average HbA1c and survival.png



Time-average HbA1c and survival.png


Time average glucose, mg/dL
70-150
150-200
200-300
Patient survival
Glucose 70-150: p-value=0.045
Glucose 150-200: p-value=0.297
Glucose 200-300 reference
Follow up time (year)


Baseline glucose, mg/dL
<70
70-150
150-200
200-300
>300
Technique survival
Glucose <70: p-value=0.768
Glucose 70-150: p-value=0.042
Glucose 150-200: p-value=0.183
Glucose 200-300: p-value=0.131
Glucose >300: reference
Follow up time (year)