

# Nutritional indicators and survival outcomes in peritoneal dialysis: A multicenter analysis

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## ABSTRACT

**Introduction:** Peritoneal dialysis (PD) is a common renal replacement therapy for end stage kidney disease (ESKD), but it poses significant malnutrition risks, impacting patient survival. This study assessed nutritional status by using normalized protein catabolic rate (nPCR), and its effect on the survival of PD patients. **Materials and Methods:** A multicenter, cross-sectional study included all PD patients from 2021 to 2023 who were over 18 and on PD for at least six months. Survival was analyzed using the Kaplan-Meier method and Cox regression models. **Results:** Survival rates differ by the primary cause of ESKD, with the highest survival observed in patients with glomerulonephritis (3-year survival of 95.5%). Patients with diabetes mellitus have a significantly lower 3-year survival (60.6%)( $p=0.003$ ). Patients with a BMI above 18.5 kg/m<sup>2</sup> have better 3-year survival (72.5-81.4%) compared to those with BMI<18.5 kg/m<sup>2</sup> (64.7%), but not statistically significant ( $p=0.323$ ). High albumin levels are associated with higher 3-year survival (79.0%) compared to those with lower albumin levels(66.7%)( $p=0.071$ ).Patients with nPCR>0.8g/kg/day with Kt/V≥1.7 was associated with a 73% reduction in mortality risk ( $p=0.034$ ). Elevated albumin (Hazard Ratio {HR}:0.88, $p=0.020$ ) and cholesterol levels (HR:0.72,  $p=0.027$ ) were linked to improved survival. Higher intact parathyroid hormone (iPTH) levels are linked to an increased risk of mortality(HR:1.01, $p=0.002$ ).Those with nPCR≤0.8g/kg/day, factors such as longer dialysis age (HR:1.03, $p=0.002$ ) and time on PD (HR:1.10, $p=0.042$ ) increased mortality risk. Indian ethnicity shows a higher risk(HR:1.82, $p=0.040$ ). Elevated iPTH (HR:1.00, $p$ -values <0.001) and calcium levels (HR:4.13, $p=0.016$ ) are linked to an increased risk of mortality. Conversely, uncertain etiology of ESKD was associated with reduced risk (HR:0.45, $p=0.030$ ). **Conclusion:** Maintaining adequate protein intake, reflected in nPCR>0.8g/kg/day, is associated with improved survival rates. Higher Kt/V, albumin, and cholesterol levels, are positively linked with survival, while elevated iPTH and calcium levels, longer duration on PD, and specific demographic factors contribute to increased mortality risk.