

SINGLE CENTRE, 14-YEAR PROSPECTIVE AUDIT OF PERITONEAL DIALYSIS PRACTICES AND CLINICAL OUTCOMES

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PROBLEM: In the mid 1990's it became apparent that a number of negative predictors of patient survival on PD, such as loss of residual renal function, ultrafiltration and high membrane transport characteristics might be influenced by altering dialysis prescription. Guidelines for minimal Kt/V (e.g. Renal Association 1.7) and the use of APD and icodextrin in high transport patients were advocated.

PURPOSE: To establish whether these changes result in actual improvements in achieved solute clearance and ultrafiltration and if they are associated with improved patient outcomes.

DESIGN: Over a 14-year period (1990-2003) we prospectively measured age, comorbidity (using a validated scoring system), residual (Kt/Vr) and peritoneal (Kt/Vp) urea clearances, membrane transport, albumin and ultrafiltration every 6 months in our patients. In January 1998 we changed our treatment strategy to achieve a minimal total Kt/V (1.7) and avoid fluid reabsorption in high transporters using APD and icodextrin, thus closing the audit loop. Comparisons were made between patients according to whether they benefited from this strategy (group 2) if used within 4 years of their commencing therapy, using ttests paired for time on therapy, Kaplan Meier and Cox regression.

FINDINGS: There were differences between the two cohorts, (Group 1: n=252, Group 2: n=272), at baseline. Group 2 were more likely to be diabetic (27% v 15%, P=0.003), had lower baseline albumin (P=0.002), higher solute transport (P=0.001) and were slightly younger (55.9 v 58.6, P=0.059). In Gp 2, 45% were on APD by 5 years compared to 3% in Gp 1, with an average of 20% using icodextrin beyond 18 months, compared to zero use in Gp 1. Throughout treatment, Group 2 achieved higher ultrafiltration (typically 200 ml/day), and peritoneal clearances such that total Kt/V was above target in >85% at every time point, whereas in Gp 1 this varied between 65 and 85%). In group 2, overall patient survival was non-significantly better (P=0.16), whereas time alive on PD was longer (P=0.009). Cox regression found survival on PD was predicted by age, (P=0.002), grade of comorbidity, (P=0.001), baseline albumin (P=0.001), and a significant risk reduction (0.68, P=0.006) in Group 2 patients. High solute transport predicted worse survival on PD in Gp 1 but not Gp 2.

CONCLUSION: We conclude that it is possible to achieve current minimal targets for solute clearance and to obtain higher ultrafiltration by altering treatment strategies in PD. This is associated with improved time alive on therapy with and without adjustment for other known predictors.

RELEVANCE: This audit supports both the feasibility and potential benefit of currently advocated treatment practice in PD.