

Is our assessment of peritoneal dialysis adequate?

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Introduction:

The assessment of peritoneal dialysis (PD) adequacy involves measurement of small solute clearance. Renal Association guidelines advise six-monthly solute clearance testing, with a combined urinary and peritoneal Kt/Vurea of 1.7/week or creatinine clearance (CrCl) of 50L/week/1.73m² recommended as a minimal treatment dose. Strategies recommended to preserve residual renal function include the use of angiotensin converting enzyme inhibitors (ACEi), angiotensin-receptor blockers (ARB) and loop diuretics.

We aimed to assess the frequency of adequacy testing over 1 year in our PD population, the proportion of patients meeting minimum adequacy, and the influence of primary diagnosis or medication on residual renal function.

Methods:

81 prevalent PD patients in our renal unit were identified. Clinical, demographic and prescribing data were reviewed from Proton. PD adequacy results for 12 months (1st October 2018 to 30th September 2019) were obtained from RenalSoft. Statistical analysis was carried out using Stata.

Results:

The median age was 72 years and 56% were male. Median length of time on PD was 433 days. The most frequent primary renal diagnoses were systemic disease (predominantly hypertensive and diabetic nephropathy) followed by tubulointerstitial disease. 40 patients (49%) had undergone adequacy testing within the previous 6 months, and 54 (67%) within 12 months. Of these, 69% achieved target weekly Kt/V (mean 1.9). Target creatinine clearance was achieved in 85% of patients (mean 66L/week/1.73m²). Overall, 87% of patients achieved adequate Kt/V or CrCl. Of the 17 patients who did not achieve target Kt/V, only 4 (24%) had an immediate change in dialysis prescription or modality.

ACEi or ARB's were prescribed in 44% of patients, and loop diuretics in 39%. Mean residual Kt/V was 0.84, and statistical analysis showed no significant effect of ACEi/ARB (p 0.5), diuretics (p 0.3) or primary renal diagnosis (p 0.3) on residual renal function. There was a trend towards lower residual Kt/V in females (p 0.07) and patients who had been on PD for more than 1 year (p 0.3).

There were 27 patients without an adequacy test. 17 (63%) of these had been on PD for less than 6 months.

Discussion:

Only half of prevalent PD patients in our unit had undergone adequacy testing in the previous 6 months as per Renal Association guidelines. Most of the patients who were not tested had only recently started PD. Of the patients tested, 87% were achieving minimum solute clearance. ACEi/ARB and loop diuretics were prescribed in less than half of the patients. Statistical analysis did not demonstrate an association between better residual Kt/V and the use of these medications, although the sample size was small. Solute clearance does not always correlate with patient well-being, which is also influenced by other co-morbidities and

individual circumstances. The dialysis prescription was left unchanged in 76% of patients who did not achieve a minimum Kt/V.

Conclusion:

Adequacy testing in PD patients may be more practically achieved every 12 months as a standard, particularly as changes are rarely made after 6 months. There may be no benefit in prescribing recommended medication to preserve residual renal function.