

Management of APD Prescriptions

TREATMENT GOAL

- Physical and mental well being, absence of uremic symptoms
- Minimal interference with family/school/social life

MANIFESTATIONS OF INADEQUATE DIALYSIS

- Overt uremia (uremic pericarditis, pleuritis)
- Manifest edema
- Clinical or biochemical signs of malnutrition, wasting
- Congestive heart failure
- Arterial hypertension requiring more than one antihypertensive agent
- Absolute BUN value
- Weekly Kt/V_{urea} and CrCl below K/DOQI recommendations
- Hyperkalemic episodes
- Hyperphosphatemia, excessive serum calcium-phosphate product

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FACTORS CONTRIBUTING TO INADEQUATE DIALYSIS

- Insufficient time on cyclor
- Loss of residual renal function
- Prescription not adequate for membrane characteristics
- Reduced peritoneal surface area due to extensive intra-abdominal adhesions
- Loss of membrane solute transport/ultrafiltration capacity due to peritonitis
- Noncompliance with PD prescription
- Poorly functioning PD catheter

CRITERIA OF APD ADEQUACY

- CCPD (APD with daytime dwell):
 - Total Kt/V_{urea} >2.1/week
 - Total CrCl >63 L/1.73m²/week in high/high average transporters, >52.5 in low/low average transporters
- NIPD (APD with dry day):
 - Total Kt/V_{urea} >2.2/week
 - Total CrCl >66 L/1.73m²/week in high/high average transporters, >55 in low/low average transporters
- Clearance associated with normal status for hydration, electrolyte balance, blood pressure, growth, nutrition and psychomotor development

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OUTCOME EVALUATION

- Monthly assessment of growth and weight gain, head circumference (infants); blood pressure, acid-base status, electrolytes, serum creatinine, BUN, hemoglobin/hematocrit, serum albumin, record urine output and daily ultrafiltration
- Serum ferritin, serum iron, total iron binding capacity (monthly until stable, then every 2—3 months)
- Every 3 months assessment of intact PTH, alkaline phosphatase
- Every 4 months assessment of 24-hour dialysate and urine collection for CrCl, Kt/V_{urea}; possibly more frequent if prior assessment reveals failure to achieve adequacy targets; school evaluation
- Every 6 months neurodevelopmental assessment in infants <4 years of age
- Consider annual:
 - Ambulatory blood pressure monitoring (ABPM), especially if casual BP frequently borderline or discrepant from home measurements, echocardiography
 - Hand and wrist X-ray (especially if intact PTH frequently outside therapeutic range)

MEASURE APD CLEARANCE

Measuring the dose of dialysis received by the patient is critical to ensure adequate therapy.

- Assess the amount of clearance the patient is receiving using a 24-hour dialysate collection. (See Appendix: Guidelines for 24-Hour Dialysate Collection—page 82, and Clearance Calculations—page 84.)
- For patients with residual renal function, add residual clearance to dialysis clearance to determine total clearance. (See Appendix: Guidelines for 24-Hour Urine Collection—page 83 and Residual Renal Clearance Calculations—page 85)
- Measurements can be done as early as 1 week after the patient is stabilized on a defined prescription.
- Once a patient achieves desired clearance, repeat measurements should be completed every 4 months.

Adjust APD Prescriptions

There are four basic options to adjust an APD prescription. The options must be weighed with regard to improvements in clearance and the patient's comfort and lifestyle.

STEP 1 INCREASE FILL VOLUMES

- Maximizing the fill volume is an effective means of improving clearance with a minimum impact on patient lifestyle. Since patients tolerate larger fill volumes when supine, adjust prescriptions first by increasing the volume of the nighttime exchanges.

STEP 2 ADD A DAYTIME EXCHANGE

- Adding a daytime exchange is an effective means of improving clearance. For patients using a dry day prescription, add a wet day. For patients using a wet day prescription, add a daytime exchange after school.
- HomeChoice High Dose Therapy, combining conventional CCPD with additional daytime exchange(s), minimizes impact on lifestyle by utilizing one cyclor setup per day for all exchanges. HomeChoice can be programmed to deliver the daytime exchange.

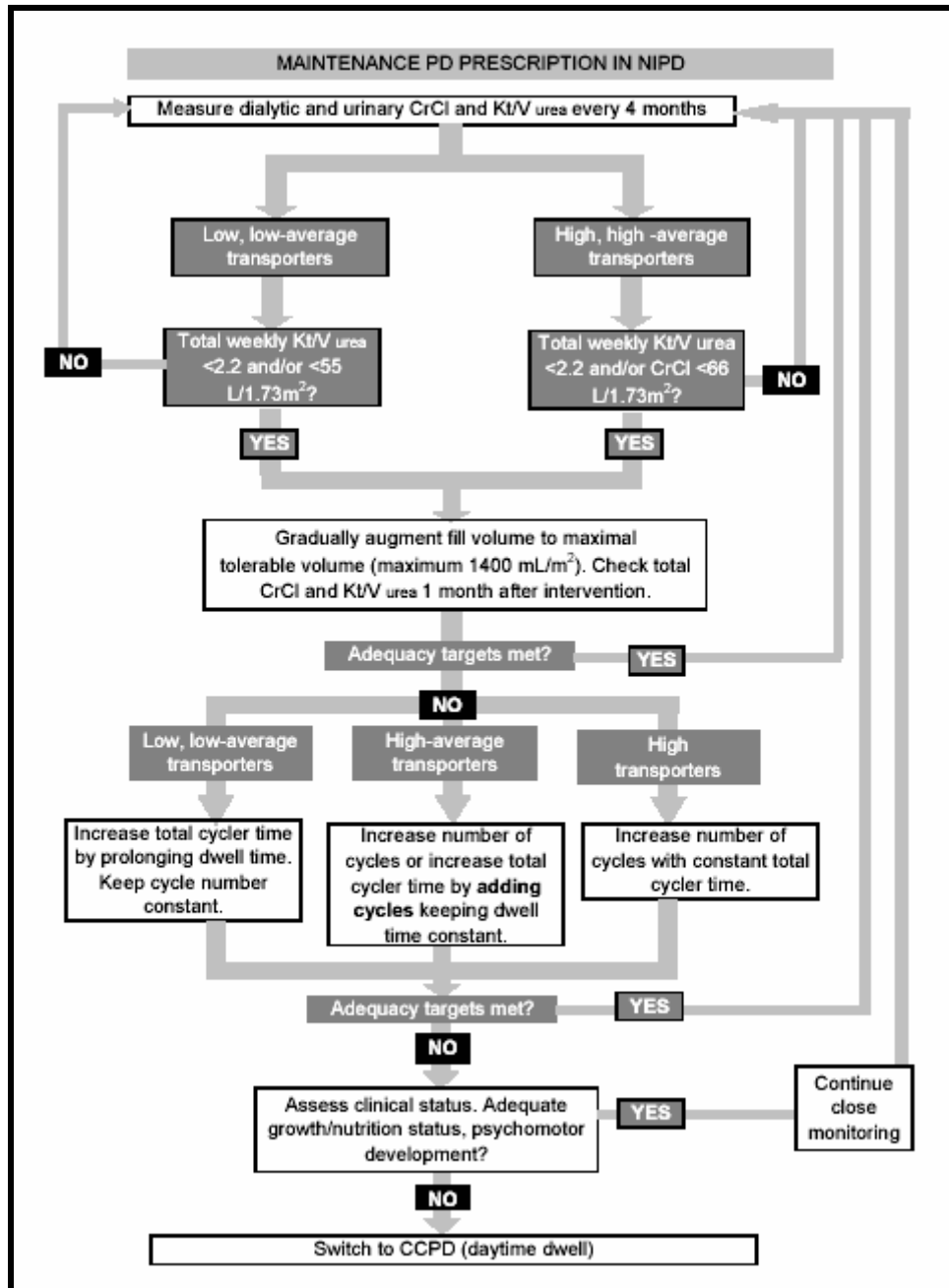
STEP 3 INCREASE TIME ON THE CYCLER

- Cyclor time can be extended to increase clearances, but this must be balanced with the patient's lifestyle needs.
- Increasing cyclor time while keeping the same number of exchanges increases the dwell time, which results in increased clearance.

STEP 4 INCREASE NUMBER OF NIGHTTIME EXCHANGES

- An increase in nighttime exchanges may increase clearance in high transporters. In patients with a different transport profile, a simultaneous increase in the time on cyclor may be required.

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