Management of CAPD 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

FACTORS CONTRIBUTING TO INADEQUATE DIALYSIS

- 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 CAPD ADEQUACY

- Total Kt/V_{urea} >2.0/week
- Total CrCl >60 L/1.73m^2/week in high/high average transporters, >50 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 CAPD CLEARANCES

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 85.)

- 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 CAPD Prescription

There are two basic options for adjusting* the *CAPD prescription. These options must be weighed with regard to improvements in clearance and the patient's comfort and lifestyle. Increasing fill volumes is preferred over adding additional exchanges.

INCREASE FILL VOLUMES

- Maximizing fill volume is THE most effective means of improving clearance.

- Start patients on the recommended prescription, and increase fill volumes if targets are not met. You may elect to increase only two of the exchanges when first adjusting the prescription. If targets are still not met, proceed by increasing the fill volume of all four exchanges.

ADD AN ADDITIONAL EXCHANGE

- A fifth exchange may be added manually during the daytime or at nighttime by the use of an exchange device. The latter is feasible only with fill volumes greater than 1500 mL.