

# ESRD NETWORK 13

Serving Arkansas, Louisiana & Oklahoma Renal Communities



## **RECOMMENDATION: FLUID MANAGEMENT FOR PERITONEAL DIALYSIS**

**RECOMMENDATION:** Develop and implement facility goals and protocols specific to fluid management for peritoneal dialysis (PD), which include:

- **BLOOD PRESSURE TARGETS:**
  - Patients should have a diastolic blood pressure < 100 mmHg in the majority of their clinic visits (e.g., at least 5 of the 6 most recent clinic visits)
- **MANAGEMENT OF FLUID GAINS:**
  - 100% of your prevalent patients should have established “Dry” Weight ordered on chart
  - The process of establishing “Dry” Weight in new PD patients should occur within 30 days of admission to chronic dialysis facility.
  - Protocols (or orders) to achieve “Dry” Weight should safely challenge to attain while avoiding symptoms
  - Once established, 100% of your prevalent PD patients should be monitored for consistent achievement of “Dry” Weight. Monitoring for achievement or needed change should be documented within individual patient plan of care
  - Considerations as PD prescriptions are established and/or reviewed
    - Dialysate drain volume
    - Residual kidney function (RKF)
  - Hypertonic glucose solution should be used with caution
  - Fluid management protocols should incorporate considerations for patients with residual renal function, compromised cardiac status, and autonomic dysfunction which impede use of general fluid removal guidelines
- **INTERVENTIONS:** Medical records should reflect evidence of investigation including one or more of the following interventions when there are exceptions to the above guidance:
  - Further dietary instruction to patients/caregivers with focused instruction on sodium and fluid intake every 90 days
  - Reassessment of “Dry” Weight
  - Reassessment of antihypertensive medication program and/or medications that interfere with fluid removal or cause symptomology (e.g., vasodilators, pain medications, non-steroidals, etc.)
  - Patient education and/or instructions for when to take and hold medications relative to dialysis treatment
  - Review of Peritoneal Equilibration Test (PET) results for transport status
  - Reassessment of hypertonic glucose solutions
  - Reassessment of the net peritoneal fluid absorption that frequently occurs with long duration dwells, such as the nocturnal dwell in Continuous Ambulatory Peritoneal Dialysis (CAPD) and diurnal dwell in Automated Peritoneal Dialysis (APD).
  - Psychosocial intervention

**CRITERIA:** Peritoneal Dialysis Patients

**RATIONALE:** Optimal control of fluid volume and blood pressure influences morbidity and mortality.

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4200 Perimeter Center Drive Suite 102 Oklahoma City, OK 73112-2314

Phone: 405.942.6000 Main Fax: 405.942.6884 Data Fax: 405.942.6181

Web site: <http://www.network13.org> Email: [info@nw13.esrd.net](mailto:info@nw13.esrd.net)

*Mission Statement: "To assess and improve the quality of care provided to individuals with End Stage Renal Disease."*

## PROFESSIONAL KNOWLEDGE:

KDOQI™ Clinical Practice Guidelines and Clinical Practice Recommendations 2006: (I. CLINICAL PRACTICE GUIDELINES FOR PERITONEAL DIALYSIS ADEQUACY GUIDELINE 4. MAINTENANCE OF EUVOLEMIA. There is a high prevalence of coronary artery disease, left ventricular hypertrophy (LVH), and congestive heart failure (CHF) in patients with Chronic Kidney Disease (CKD) stage 5, including those on PD therapy. Cardiovascular disease (CVD) is the largest cause of death in this population. In patients with kidney failure, volume overload is widely believed to be the major contributor to hypertension. Therefore, interventions to optimize volume status (and hence blood pressure) are considered central to the management of these patients.

Circumstantial evidence from observational studies suggests that low transport status according to PET is associated with improved outcome in CAPD patients; this may reflect the beneficial effect of low transport status on peritoneal ultrafiltration and thus on clinical outcome. Greater fluid removal (peritoneal plus kidney) also was found to be a favorable predictor of outcomes in observational studies of both CAPD and APD patients.

KDOQI™ CPG state that each facility should implement a program that, each month, assesses patients' blood pressure and volume status and evaluates their drain volume, RKF, and dietary salt and water intake. To ensure good control of blood pressure and volume status in PD patients, clinical examination of the patient needs to be carried out on a monthly basis. In particular, this should involve reevaluation of the patient's target weight. Clinical examination will need to be done more frequently in the initial weeks of PD therapy when target weight is being established for the first time.

Peritoneal fluid removal can be increased by using a more hypertonic glucose solution or an alternative osmotic agent, such as icodextrin. Consistent use of hypertonic glucose solutions raises concerns about damage to the peritoneal membrane and the adverse effects of increased systemic absorption of glucose. Concerns about the role of glucose in membrane deterioration, in particular, have been supported by recent studies.

A preferred approach is to avoid long-duration dwells that often are associated with ineffective fluid removal or even net fluid resorption. In patients on APD therapy, this can be done by either shortening the day dwell and leaving the patient "dry" for a portion of the day or draining out the day dwell and replacing it with fresh dialysis solution partway through the day.

In CAPD patients, it can be dealt with by switching to APD without a long day dwell or using a night-exchange device to divide the nocturnal dwell into 2 shorter dwells. An alternative strategy is to use icodextrin solution for the long nocturnal dwell in CAPD patients and the long day dwell in APD patients. This was shown in randomized control trials to both increase peritoneal ultrafiltration and decrease extracellular fluid (ECF) volume. With icodextrin in place, there is no need to drain a day dwell early to optimize ultrafiltration. However, some patients may still request a shorter duration day dwell (6 to 8 hours) to allow for a period of day dry time, which some find more comfortable.

## REFERENCES:

1. KDOQI™ Clinical Practice Guidelines and Clinical Practice Recommendations 2006 (I. CLINICAL PRACTICE GUIDELINES FOR PERITONEAL DIALYSIS ADEQUACY GUIDELINE 4. MAINTENANCE OF EUVOLEMIA