HYBRID DIALYSIS: PRACTICE ISSUES

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DISCLOSURES

• Speaker has received honoraria from:
  – AMGEN
  – Abbott
  – Eli Lilly

• Speaker does not possess significant knowledge or experience re: ‘Hybrid Dialysis’ (presentation is a ‘collaborative product’)

OBJECTIVES

• Identify clinical and psychosocial factors that may influence the decision to proceed with hybrid dialysis.

• Understand potential advantages and pitfalls of hybrid dialysis.
QUESTIONS RAISED

• What is the role of hybrid/bimodal dialysis?
  - Initiate early vs ‘late’ (after many months/yrs on PD alone)?
  - To ‘extend’ time on PD?
  - To improve quality of life?
  - To improve survival?
  - To alleviate ‘procedural fatigue’ related to PD?
  - Tailor to a certain patient profile?
OUTLINE

- Definition/Characteristics
- Clinical case presentation
- Reported experience and outcomes
- Medical issues
- Psychosocial issues
- Advantages
- Challenges
HYBRID DIALYSIS: DEFINITION

- ‘Bimodal dialysis’
- ‘Combination therapy, PD with HD’
- Usual scenario is addition of once weekly HD to established PD prescription (CAPD or CCPD)
  - Occasionally, PD added to standard HD prescription for volume control if short daily HD ineffective
  - Any combination of PD with HD (can be home-based or center-based) – prescription/schedule depends on clinical needs and psychosocial issues
Mr. M.W., 35 y/o single maintenance engineer with ESRD d/t IgA nephropathy, on CCPD for 5 yrs; ‘ambivalent’ re: transplant
- Enjoys traveling; visits family in U.K.
- Takes road trips on his motorcycle
- No steady relationship
- Progressive decline in health/functional status/QOL over past 6-12 months related to inadequate solute clearance
Mr. M.W., cont’d.

- Patient decides to switch to Home Hemodialysis, but does not want PD catheter removed; trip to U.K. planned in 2-3 months
  - While in U.K. patient does CAPD, which goes reasonably well, but quite uremic upon return home
- Continues HHD, 20 hrs/week (reluctant to do nocturnal HD); becomes progressively more uremic, as not performing HD ‘regularly’
- Decision made to schedule HD 2x/wk in center, at home minimum once/wk, option to still do CCPD
REPORTED EXPERIENCE AND OUTCOMES

• Masakane et.al. PDI 2008;28 (suppl)
  - 18% of PD pts in Japan treated with combination Tx

• Suzuki et.al. Adv Perit Dial 2012;28 (Japan)
  - Men more likely to receive combination PD/HD, had earlier addition of HD (once/wk), and may have resulted in improved survival
  - Combination therapy improved solute removal and increased serum albumin and hemoglobin
REPORTED EXPERIENCE AND OUTCOMES

• Hoshi, H. et al. Adv Perit Dial 2006;22 (Japan)
  – 9 CAPD pts added one HD/wk, on PD 3.6 yrs duration
    • CCr increased from 45 L/wk to 60 L/wk
    • UF increased from 700 mL/day to 1000 mL/day
    • SBP decreased; hemoglobin, albumin increased (p<0.05)

• McIntyre, CW. PDI 2004;24 (U.K.)
  – 6 incident ESRD pts started bimodal dialysis: 2, 3-hr HD/wk combined with 2 PD exchanges/day
    • BP controlled with reduction in meds
    • LV index decreased
    • Residual renal function unchanged over mean time on BMD of 346 days
REPORTED EXPERIENCE AND OUTCOMES

- McIntyre, CW. PDI 2004;24
  - ‘added benefits’ :
    - If problems with AVF/AVG, no need to insert CVC (pts could do PD exclusively until access issue resolved)
    - If problems with PD catheter dysfunction, or severe peritonitis requiring removal, pts did HD exclusively until PD re-established (AVF/AVG well established when BMD initiated)
    - ‘Social choices’ could be more easily accommodated (ie. travel/holidays)
    - Mean body weight did not change
    - Peritoneal membrane transport did not change
REPORTED EXPERIENCE AND OUTCOMES

• Agarwal M, Burkart J M et al. PDI 2003;23 (USA)
  - Data on 31 pts collected from multiple centers
    • Main clinical indications for offering BMD:
      - Inadequate solute clearance (34%)
      - Insufficient ultrafiltration/refractory volume overload (16%)
      - Neuropathy (11%)
      - Misc.: pregnancy, pericarditis, cardiomyopathy, abdominal hernia, dialysate leak
    • Mean time on PD prior to BMD was 3-4 yrs
    • 74% pts reported improvement in symptoms; 89% were happy with combined treatment; 14% had access problems
    • Center reimbursed for PD 6d/wk, HD once/wk
MEDICAL INDICATIONS FOR HYBRID DIALYSIS

- Inadequate solute removal/uremic Sx
- Insufficient ultrafiltration; refractory chronic volume overload
- Hernia; dialysate leak
- (Noncompliance with home-based modality suspected)
- (‘Bridge’ to transplantation in near future)
- ?Preservation of peritoneal membrane
PSYCHOSOCIAL FACTORS THAT INFLUENCE DECISION TO DO PD+HD

- Geographical challenges to doing hemodialysis alone; unable to do HHD
  - Pt resides in remote/rural area, inadequate space/water, etc. for HHD, no HD unit nearby
- Employment/work schedule
- Travel
- Patient choice; doesn’t want to give up PD
- Social isolation doing home modality
- Patient/caregiver burned out from long-term self-management
ADVANTAGES OF HYBRID DIALYSIS

• Improved solute clearance
• Improved volume/BP control
• Improved quality of life
• Patient independence/choice maintained
• Maintains ability to travel (if pt has significant RRF, may be feasible to switch to PD alone for limited timeframe)
• Seamless transition to single modality if access problems
• Preservation of peritoneal membrane function?
• Preservation of RRF?
CHALLENGES/ PITFALLS

- Two accesses required; increased risk of infectious complications
- If doing HHD/CCPD, extensive space required to store supplies/equipment; labor/time-intensive
- Increased cost/resources
- Reimbursement issues
- Difficult to determine when to d/c PD (long-term PD may increase risk of EPS); suggested to switch to HD alone when PET changes significantly (permeability increasing)
HYBRID DIALYSIS: SUMMARY

• Historically, PD+HD therapy utilized in uremic PD pts without RRF who had well preserved peritoneal membrane function

• Physician bias usually leans toward complete switch from PD to HD when adequate solute clearance and/or UF can’t be achieved with ‘maximum’ PD Rx

• Studies have demonstrated that PD+HD results in improved BP/ volume control, improved solute clearance, improved symptoms and better QOL
HYBRID DIALYSIS: SUMMARY

• Initiating PD as first choice, adding HD when indicated, then eventually switching to HD alone fits well with concept of integrated care

• Combined therapy at onset of need for RRT better approach for subset of patients?

• Hybrid dialysis may expand choice of PD Rx
How will my own practice change?

- Be sensitive to ‘early’ signs of medical and/or psychosocial deterioration while on PD, discuss PD+HD as a possible option with all patients I would have historically switched to HD alone
- Establish vascular access early in ‘at risk’ pts on PD:
  - Large body mass, rapidly deteriorating RRF, poor UF/increased peritoneal membrane permeability, severe cardiomyopathy
- **Think ‘outside the box’!**
OUR MISSION

As nephrologists, we offer and administer chronic life support therapies.  

*Our goal is to prolong life while maintaining quality of life. Patient choice is an essential factor in achieving this.*