



**BCKD**<sub>18</sub>  
BC KIDNEY DAYS

## **UNIQUE CASES IN PD**

**Personalized Care to Optimize Outcomes**

# DISCLOSURES

- Accepted Speaker's honorarium
  - AMGEN
  - Otsuka

No conflict of interest pertaining to content of this presentation

# Territorial Acknowledgment

We would like to acknowledge that the land on which we gather is the traditional and unceded territory of the Coast Salish peoples, including the territories of the **Musqueam, Squamish, and Tsleil-Waututh Nations**

# LEARNING OBJECTIVES

- Discuss specific clinical scenarios where PD may be used to effectively treat symptoms and improve quality of life (cardiorenal syndrome; refractory ascites)
- Understand how customized approaches to PD catheter insertion can be used to overcome perceived barriers

# One Patient's Story

- **78 y/o man requires HD start via tunneled CVC; ESRD d/t diabetic/hypertensive nephrosclerosis** (PD had been chosen modality)
    - **PMHx:**
      - Type 1 DM (since 38 y/o), HTN, CAD, Aortic Stenosis, Atrial Fibrillation, TIA
    - **6 months on HD:**
      - cachexia, deconditioning, falls, infected foot ulcers, orthostatic hypotension
    - **2 years on HD:**
      - Requiring 4 runs per week d/t inability to achieve DW, pulmonary edema
      - Echocardiogram: **Severe Aortic Stenosis**
- He had 6 hospital admissions over 2 yrs**

# One Patient's Story

## – 3 years on HD:

- Elective balloon valvuloplasty, complicated by ACS, cardiogenic shock
- Patient 'not a surgical candidate' (re: AVR)
- One month later..... **Bedside PD catheter insertion under local anesthesia → successful PD start**

## – 6 months on PD:

- One brief hospitalization only (for symptomatic rapid a. fib)
- Traveled to Parksville to spend time with family
- As cardiac decompensation progressed, palliative care services were implemented to manage symptoms
- Peaceful death at home (as patient had desired)

# The following are considered contraindications to peritoneal dialysis (PD):

1. Predicted life expectancy of one year or less
2. Age greater than 85 y/o
3. Dementia (severe cognitive impairment)
4. Other advanced organ failure (cardiac, liver)
5. All of the above
6. None of the above

[Results](#)

# The following are considered contraindications to PD:

1. Weight greater than 120 kg
2. Weight greater than 100 kg
3. BMI greater than 30
4. All of the above
5. Weight greater than 120 kg and minimal residual renal function

[Results](#)



## **The following are considered contraindications to bedside PD catheter insertion (limited visualization):**

1. Patient unable to lay flat (due to decompensated heart failure)
2. Advanced liver failure
3. Colostomy/Ileostomy
4. Multiple abdominal surgeries; history of bowel obstruction due to adhesions
5. Morbid obesity (BMI greater than 35)
6. All of the above

## [Results](#)

# PD: “THERE’S NO PLACE LIKE HOME”

- **Why patients want PD:**
  - More time at home
  - More time with family
  - Opportunity to travel
  - Improvement in BP and symptoms such as leg cramps, RLS, pruritus, nausea, dyspnea, edema
  - They hate center-based hemodialysis
  - Free from vascular access (especially CVC)
  - Respects patient autonomy, dignity
  - Patients love the multi-disciplinary team; emotional, social, spiritual needs also met
  - Less financial strain, especially if able to return to work

# Contraindications to PD: Historical Perspective

- If life expectancy less than 1 year, it's not cost effective, requires too much investment (training, resources, etc.)
- Refractory heart failure/cardiorenal syndrome:
  - PD catheter insertion risky (GA risk, pt unable to lay flat for bedside insertion); increased intra-abdominal pressure may worsen dyspnea
- Refractory ascites:
  - High risk of fluid leak, increased risk of ESI/tunnel infection/peritonitis
- Morbid obesity:
  - Unlikely to achieve “adequate solute clearance”; increased risk of ESI/tunnel infection/peritonitis

# Patient-Centered Care: Giving Patients What They Want

- Patients with a 'limited life expectancy' benefit from a palliative approach to care; **PD can be an effective palliative treatment**
  - A palliative approach ***prioritizes patient comfort.. treatment aligns with patient preferences*** and goals of care to improve quality of life and reduce symptom burden for patients in their final year of life (Grubb et. al. CJASN 2014)

## **Davison CJASN 2010**

- **Only 18% of patients surveyed favored dialysis to extend life; most preferred care to focus on reducing pain/suffering**
- **36% wished to die at home**

# Patient-Centered Care: Giving Patients What They Want

Wong et.al. Arch Int Med 2012

- In last month of life for dialysis patients, rates of hospitalization are 76%, for ICU admission 49%

## What if we could reduce the time spent in hospital during the last year of life?

- Rychelynck et.al. Adv Perit Dial 1997
  - For patients with **cardiorenal syndrome**, mean hospital time decreased **3.7-fold** following initiation of PD; most pts improved from NYHA III/IV to I/II
- Nakayama et.al. PDI 2013 (review)
- Bertoli et.al. PDI 2014 (cohort study)

**We could potentially save health care dollars, but *more importantly, deliver care according to patients' expressed wishes at end of life.***

# Thinking Outside the Box: “Nonuremic” Indications for PD

- **Cardiorenal Syndrome**

- Improved hemodynamic stability compared to HD
- Possibly fewer hospitalizations
- Avoids vascular access creation (may exacerbate cardiac failure)
- Avoids CVC (can be technically challenging for pts with pacemakers/ICDs)
- Fewer episodes of severe hypotension may translate to preservation of residual renal function

# Thinking Outside the Box: “Nonuremic Indications for PD”

- **Refractory Ascites**

- Causes: RV failure, End Stage Liver Disease, Malignancy
- Lundgren et.al. J. Vasc. Int. Radiol 2013
  - Prospective single-center study of 188 pts with 193 catheter placements under fluoroscopic or U/S guidance
  - 93% for malignant ascites; 7 for ESLD; 6 for heart failure
  - 100% technical success; no procedure-related deaths
  - Mean catheter survival: 60 days (0-796 d)
    - 5 had catheter malfunction; 4 had leaks; 3 tunnel infections; 2 episodes peritonitis
    - Complication rate: 0.43 events per year

# Thinking Outside the Box: “Nonuremic Indications for PD”

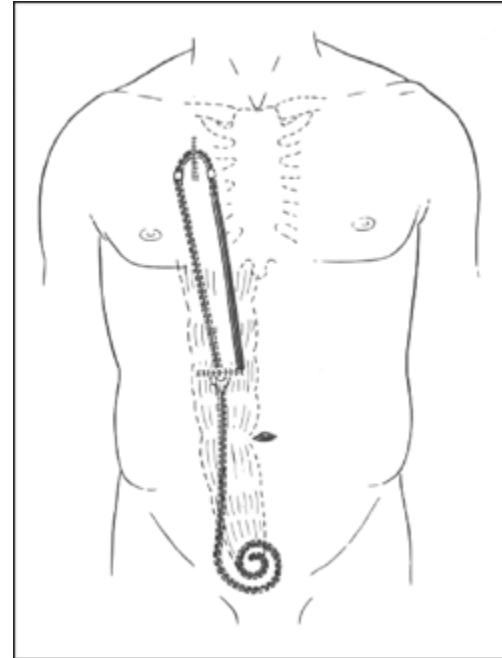
- **PD for End Stage Liver Disease**
  - DeVecchi et.al. AJKD 2002
    - Retrospective: 21 cirrhotic pts, 41 PD pts without liver ds, 5-year f/u
    - NO difference in patient or technique survival
    - Peritonitis rate 0.31/pt-yr in cirrhotic pts, 0.53/pt-yr in controls
    - Similar hospitalization rates: 16.5 d/yr in cirrhotic pts, 15.4 d/yr in controls
    - Fluid leak occurred in 3/21 cirrhotic pts



# Thinking Outside the Box: PD Catheter Placement

## “The Bathtub Presternal Catheter”

- First performed at U of Missouri (Twardowski) in 1991
- 150 catheters implanted over 10 years, followed for > 130 pt yrs
- 2-yr catheter survival was 0.95
- Recurrent/refractory peritonitis only reason for catheter failure
- Performed better than abdominal exit site placement re: exit site & tunnel infections
- Disadvantages:
  - Requires a surgeon
  - May become disconnected in tunnel
  - Slower flow



# Thinking Outside the Box: The Presternal PD Catheter

- Home Dialysis Central  
([www.homedialysis.org](http://www.homedialysis.org))
- Who may benefit?
  - BMI > 35
  - Patients with ostomies
  - Children with diapers/fecal incont.
  - Preference for baths
  - Better body image?
- *Historically, such patients would not have been offered PD*



# Obesity and PD Outcomes

- **Obesity and Peritonitis**

- McDonald, Johnson et.al. PDI 2004

- Retrospective observational study of 10,709 incident PD pts **1991-2003**
    - Obese pts (BMI>30) had shorter time to first peritonitis episode vs pts with normal BMI (20-25); **HR 1.08** for each 5 kg/m<sup>2</sup> increase in BMI
    - Higher peritonitis rates in obese pts:
      - **1.06 episode/pt-yr vs 0.79 episodes/pt-yr** (BMI>30 vs 20-25)

# Obesity and PD Outcomes

- **Obesity and Survival on PD**

- McDonald, Johnson et.al. JASN 2003

- 9679 incident PD pts, **1991-2002**
    - Obesity independently associated with death (**HR 1.36**) and technique failure (**HR 1.17**)
    - **Except** among pts of Maori/Pacific Islander origin – NO significant association between BMI and death
    - **BUT** risk of death also much higher for underweight pts (BMI<20); **J-shaped curve** observed
    - Risk of death lowest at BMI = 20 kg/m<sup>2</sup>

# Should PD be offered to obese patients?

- **Considerations:**

- Concept of informed consent
- BUT: how good is the data we are basing life-altering decisions on? (dated, retrospective; technology and care models have improved since the 1990s)
- Older studies did NOT examine effect of RRF
- Our responsibility is to inform of possible risks, advise how to implement preventive strategies, and provide multi-disciplinary supportive care

# SURVIVAL VS QUALITY OF LIFE: WHAT MATTERS MOST

- Manns et.al Clin Neph 2003
  - HD vs PD, 192 prevalent pts, used KDQOL-SF36
  - When comorbidities accounted for, **NO difference in HRQOL**
  - The comorbidity scores themselves (CCI) were associated with HRQOL, not the dialysis modality
- Wu et.al JASN 2004
  - 698 HD pts, 230 PD pts; primary outcome was change in HRQOL after 1 yr (from dialysis start); 101 pts died, 55 transplanted, 88 moved
  - At 1 yr, KDQOL-SF36 scores improved in some selective domains:
    - For PD: **finances improved**; For HD: **physical function, sleep and general health perception improved**
    - Overall, similar outcomes between modalities at 1 yr

# SURVIVAL VS QUALITY OF LIFE: WHAT MATTERS MOST

- Zazzeroni et.al. Kidney Blood Press Res 2017
  - Systemic review and meta-analysis: 2011-2016, only **7 articles found**
  - Used KDQOL-1.3 or 36 questionnaires
  - Contrary results found:
    - One study found better HRQOL for PD vs HD; 2 studies found HD > PD
    - One study found **better patient satisfaction for PD**
    - Quantitative analysis showed significantly better HRQOL “regarding the effect of kidney disease” for PD vs HD

## What to make of these results?

- More (and better) studies are needed!!
- *Listen to the patient and tailor care to align with what matters most to him/her*

# HOW DO WE DETERMINE WHAT MATTERS MOST TO PATIENTS?

- Read what they are reading
  - Home Dialysis Central (Medical Education Institute, Inc.)  
*“How do you choose a treatment when you don’t want any of them?”*
- Use the Serious Illness Conversation Guide
  - Ask about patient’s understanding of illness, hopes, fears, strengths, family, trade-offs
- Develop relationships, demonstrate empathy and compassion; establish trust; exercise cultural sensitivity
- Implement a palliative approach



# MOVING FORWARD: A CALL TO ACTION

- Research Studies:
  - Have we been measuring/reporting outcomes that are meaningful to patients?
  - PREMs and PROMs → exciting future wave of research based on ***patient reported measures***
  - Providing “Informed Consent”
    - Ensuring patients are given accurate information, in a way they are able to understand, at the right time, in order to make the best decision for them

# TAKE HOME MESSAGES

- PD can be an effective therapy for patients with 'non-uremic' chronic conditions such as cardiorenal syndrome, ESLD, and ascites
- PD effectively reduces symptom burden
- PD, when chosen by well-informed patients, enables them to preserve their way of life as much as possible
- Presternal catheter placement may be an option for obese patients and those with ostomies