PRE-INSERTION PLANNING, PATIENT SELECTION, AND CATHETER SELECTION

PERITONEAL DIALYSIS TRAINING PROGRAM
OUTLINE

▪ Patient pathway to PD

▪ Patient selection

▪ Pre-op instructions

▪ Catheter and exit site placement

▪ Catheter selection
1. Identify all PD candidates

2. Assess patient for PD eligibility

3. Offer PD if eligible and obtain patient preference for PD vs HD

4. Attempt/insert PD catheter

5. Start PD therapy
IDENTIFY PD PATIENTS

▪ Keep the mindset of, “PD First”
▪ Consider your potential patient population
  ▪ All ESRD patients (and transfers from other centers)
  ▪ All patients receiving outpatient dialysis
  ▪ All patients with >30 consecutive days of dialysis dependence (including AKI)
  ▪ All patients with a failed transplant on dialysis
▪ Complete medical history and physical exam
▪ Convene a multi-disciplinary group to decide on patient selection:
  ▪ Social worker
  ▪ Home RNs
  ▪ Dietician
  ▪ Physicians

ASSESS FOR PD ELIGIBILITY

MOST FREQUENT CONTRAINDICATIONS TO PD
- Place of residence does not permit PD
- Prior major abdominal surgery
- Untreated large abdominal hernias
- Morbidly obese
- Active diverticulosis
- Abdominal wall ostomies and conduits
- Large abdominal aortic aneurysm

MOST FREQUENT BARRIERS TO PD
- Physical barriers
  - Insufficient strength
  - Insufficient dexterity
  - Poor vision
  - Poor hearing
  - Immobility
  - Overall fragility or poor health
  - Poor hygiene
- Cognitive barriers
  - History of poor compliance
  - Language barrier
  - Unable to read
  - Psychiatric illness
  - Dementia

ASSESS FOR PD ELIGIBILITY
DECISION-MAKING TOOLS: MATCH-D™*

MATCH – D™*

- Method to Assess Treatment Choices for Home Dialysis
- Designed to assist clinicians in identifying potential barriers and candidates for home dialysis
- Provides separate criteria for PD and home hemodialysis
- Color coded:
  - Green = strongly encourage
  - Yellow = encourage after addressing potential barriers
  - Red = may not be able to do home dialysis without reliable/willing helper

Find the MATCH-D™* at www.homedialysis.org/match-d

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ASSESS FOR PD ELIGIBILITY
DECISION-MAKING TOOLS: MATCH-D™*

Find the MATCH-D™* at www.homedialysis.org/match-d
2. My Lifestyle

<table>
<thead>
<tr>
<th>How I feel about myself</th>
<th>My thoughts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Being in charge of my own life</td>
<td></td>
</tr>
<tr>
<td>Being able to do things for myself</td>
<td></td>
</tr>
<tr>
<td>Having a reason to be alive</td>
<td></td>
</tr>
<tr>
<td>Needing others to look after me</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>My life in the future</th>
<th>My thoughts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Finding time for treatment</td>
<td></td>
</tr>
<tr>
<td>Travelling to a centre for treatment</td>
<td></td>
</tr>
<tr>
<td>Being in my own home for treatment</td>
<td></td>
</tr>
<tr>
<td>Storing treatment equipment in my house</td>
<td></td>
</tr>
<tr>
<td>Not having treatment</td>
<td></td>
</tr>
</tbody>
</table>

Available at www.homedialysis.org.au
### 3. How much do you think each dialysis treatment will let you carry on doing the activities that are important to you?

Circle one number for each treatment.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Not at all</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Haemodialysis - Centre (machine at hospital)</td>
<td>0 1 2 3 4 5 6</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Haemodialysis - Home (machine at home)</td>
<td>0 1 2 3 4 5 6</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Peritoneal Dialysis - Continuous Ambulatory (bag at home or any clean place)</td>
<td>0 1 2 3 4 5 6</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Peritoneal Dialysis - Automated (machine at home or any clean place)</td>
<td>0 1 2 3 4 5 6</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Decision Making Tools (continued)

Available at https://www.kidneyresearchuk.org/DialysisDecisionAid
OFFER PD TO ELIGIBLE PATIENTS

- Offer the choice as part of an educational process\(^1\)
  - Multidisciplinary team approach
  - One-on-one sessions
  - Peer education
  - Written materials
  - Videos
  - Websites

- Typically about 50% of patients should select PD\(^1\)

- Education can significantly impact the percentage of patients selecting PD as a treatment\(^2\)

\(^1\) Blake, et al. 2013.
PRE-INSERTION OF PD CATHETER

- Optimal timing of insertion is at least 2 weeks prior to the expected use of the catheter\(^3\)

- Confirm lifestyle considerations to comply with PD\(^3\)

- Full medical history\(^4\)

- Abdominal exam, history of prior abdominal surgeries/catheter placement, hernias, any weakness of abdominal wall should be repaired prior to PD catheter insertion\(^4\)

- Abdominal scarring is not a contraindication to PD, but may require video-guided laparoscopic placement\(^5\)

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\(^3\) Figueiredo, et al. 2010.  
EXIT SITE POSITION

- Consider patient preference

- Locate to maximize self-care skills
  - Clearly visible to patient
  - Considers patient handedness, motor skills, and strength

- Above or below the belt line?

- Direct laterally and facing downwards

- Avoid moist areas or those subject to pressure (consider incontinence)

- Avoid scars, creases, abdominal skin folds, and ridge of an abdominal pannus

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6Crabtree. 2006
MARKING THE EXIT SITE\textsuperscript{6}

- Identify belt line with patient in supine position/dressed

- With the patient still in supine position, mark the catheter entry at deep cuff

- Ensure that catheter length takes catheter coil to symphysis pubis

- Exit site is now located 2-3cm from the external cuff in line with external catheter limb

- Confirm exit site is above/below belt line with patient in a seated position

\textsuperscript{6}Crabtree. 2006
Some factors may require consideration of extended catheters or pre-sternal catheters:

- Weight/obesity
- Floppy skin folds
- Stomas
- Incontinence
- Requirement/desire for deep tub baths
- Colostomies

6Crabtree. 2006
PRE-OP WORK-UP

- CBC, BMP, PT, PTT, Type & Screen
- Consider use of mechanical bowel preparation with 1 gallon of polyethylene glycol, although this is not always necessary\textsuperscript{7,8}
- Patient appropriateness for administration of conscious sedation\textsuperscript{9}
  - Examples
    - Midazolam 1–4 mg
    - Fentanyl 50–200 mcg

\textsuperscript{7}Contant, et al. 2007.
\textsuperscript{8}Guenaga, et al. 2011.
\textsuperscript{9}Javid, et al. 2011.
INFECTION PROPHYLAXIS AND SKIN PREPARATION

- Consider screening for MRSA and nasal carrier status\textsuperscript{4,5}

- Morning of the operation: Shower with soap or detergent\textsuperscript{4}
  - e.g. Chlorhexidine abdominal wash

- Clip/shave abdominal hair (if present)\textsuperscript{4}

- Pre-operative antibiotic prophylaxis\textsuperscript{4}
  - Single i.v. dose of first or second generation cephalosporin
  - Vancomycin only for penicillin-allergic patients

- Catheter insertion performed under sterile conditions

\textsuperscript{4}Flanigan and Gokal. 2005.
\textsuperscript{5}Amici, et al. 2013.
CATHETER SELECTION
CHARACTERISTICS OF AVAILABLE PD CATHETER CONFIGURATIONS

- Shape of intraperitoneal segment
  - Straight
  - Coiled

- Number of cuffs
  - Single cuff
  - Double cuff

- Subcutaneous configuration
  - Straight (Tenckoff)
  - Prefabricated bend (Swan Neck)

\(^{10}\)Hagen, et al. 2014.
## CATHETER SELECTION
### CHARACTERISTICS OF AVAILABLE PD CATHETER CONFIGURATIONS

<table>
<thead>
<tr>
<th>Categorization</th>
<th>Factors Considered</th>
<th>Comparison</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Intraperitoneal Segment</strong>&lt;br&gt; <em>Straight vs. Coiled</em></td>
<td>Exit site infection, Peritonitis, Migration, leakage, removal, Wound/tunnel infection, drainage dysfunction, interventions, 1 year survival</td>
<td></td>
<td>No significant difference</td>
</tr>
<tr>
<td></td>
<td><strong>2 year survival</strong></td>
<td></td>
<td>** Significant difference – favors straight catheters**</td>
</tr>
<tr>
<td><strong>Subcutaneous Segment</strong>&lt;br&gt; <em>Straight vs. Swan Neck</em></td>
<td>Exit site infection, Peritonitis, Migration, leakage, removal, Catheter dysfunction (one-study only), 1 year survival</td>
<td></td>
<td>No significant difference</td>
</tr>
<tr>
<td><strong>Number of Cuffs</strong>&lt;br&gt; <em>Single vs. Double</em></td>
<td>Exit site infection, Peritonitis, Obstruction, removal, 1 year survival</td>
<td></td>
<td>No significant difference</td>
</tr>
</tbody>
</table>

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10Hagen, et al. 2014.
CATHETER SELECTION
CHARACTERISTICS OF AVAILABLE PD CATHETER CONFIGURATIONS

In summary, according to current evidence, catheter selection based on characteristics of catheter configurations plays only a small role in PD outcomes.

Hagen, et al. 2014.
IF CATHETER SELECTION DOES NOT IMPACT PATIENT OUTCOMES, THEN WHAT DOES?¹¹

▪ Choose the catheter that is a proper “fit” for the patient.
  ▪ Allows for pelvic location of the distal catheter
  ▪ Provides an appropriate exit location that is accessible for the patient and away from belt lines, skin creases, and folds.

▪ Abdominal site markings are critically important for proper placement.

▪ Evidence suggests insertion technique has more impact on patient outcomes than type of catheter.

UNIVERSITY OF WISCONSIN (UW) HOSPITALS AND CLINICS
CENTER EXPERIENCE IN SELECTING PD PATIENTS

- Multidisciplinary team

- Due to the expense of home set-up, training, and staff commitment, the team at UW assume patients will be dialyzing for at least 6 months

- Home visit will occur after initial preliminary acceptance into program
THE UW EXPERIENCE
CRITERIA FOR ACCEPTANCE FOR PD

- Pre-authorization of insurance coverage
- Clean home environment
- Running water, indoor plumbing, phone service and electricity
- Storage for 30-40 boxes of fluid and supplies
- Able and willing to come for monthly f/u visits
- Able and willing to lift 11lbs over head for CCPD and 5 lbs for CAPD
- Able and willing to keep home treatment records and provide to team
- Able to place supply orders and be available for deliveries
- Must have working phone and voicemail and able to respond within 24hrs
THE UW EXPERIENCE
PRE-OP INSTRUCTION FOR PERCUTANEOUS INSERTION OF PD CATHETER

1. Hold anticoagulants and anti-platelet medications for 5 days prior to procedure

2. Nothing to eat or drink after midnight prior to procedure

3. May take AM pills with minimal water

4. Bowel prep evening before procedure
   a) Drink 1 quart of polyethylene glycol electrolyte solution—8oz every 10-15 min.

5. Day of surgery, peripheral IV started and prophylactic antibiotics started prior to procedure
REFERENCES


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