Fistula First?

Vascular Symposium
4/28/18

Disclosure

- I have no financial interest to disclose connected to any of the information presented in this discussion

Objectives

- Scope of Problem
- Benefits of PD
- PD Failure
- Modes of PD
- Insertion Techniques and Adjunctive Procedures
- Contraindications
- Complications

Scope of the Problem

CHRONIC KIDNEY DISEASE

1 in 7 Americans has chronic kidney disease, but most of them are not aware of their disease.

KIDNEY FAILURE

The United States has the third highest rate of new cases of kidney failure in the world. The rate of new cases in 2015 was similar to recent years.

VASCULAR ACCESS

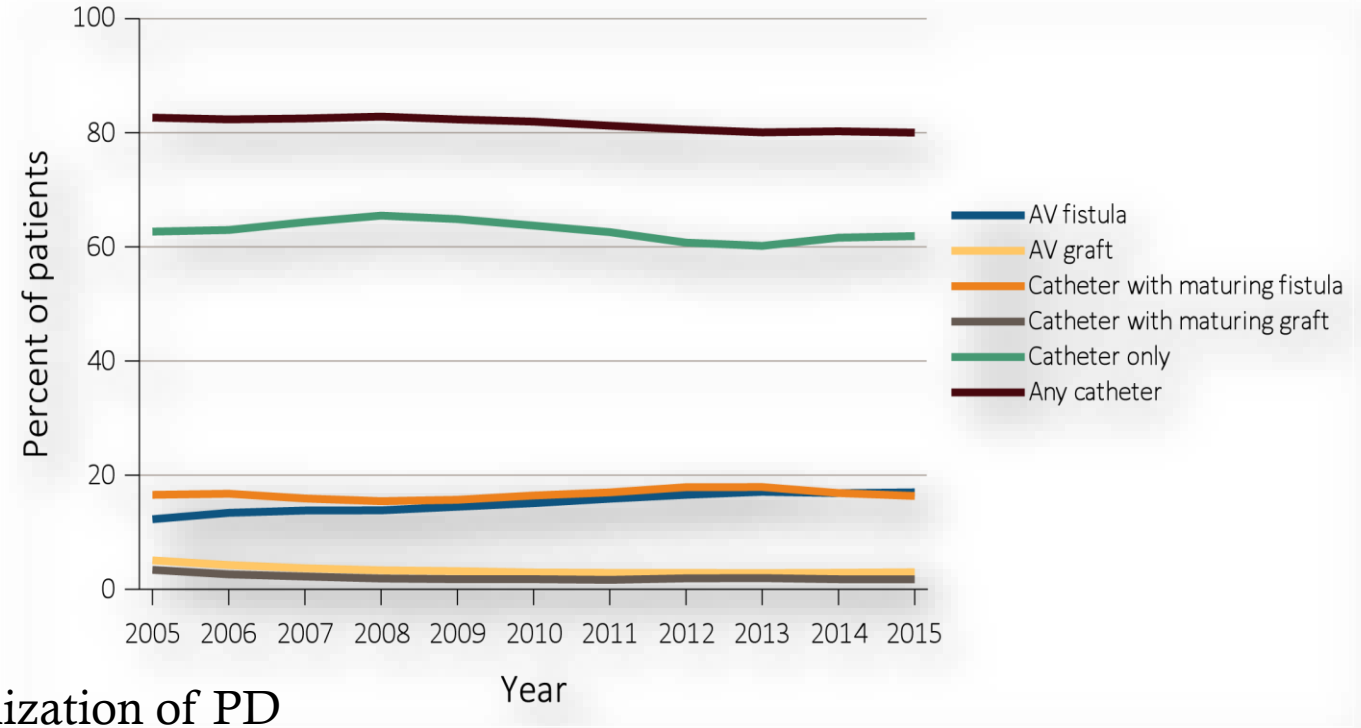
4 out of 5 new dialysis patients start with a catheter, which can lead to preventable infections. Fewer than 1 in 5 starts with the preferred access type: an arteriovenous fistula.

COST TO MEDICARE

In 2015, 1 out of every 5 Medicare dollars was for patients with CKD. Medicare spent $98 billion for people with chronic kidney disease, including $34 billion for people on dialysis.

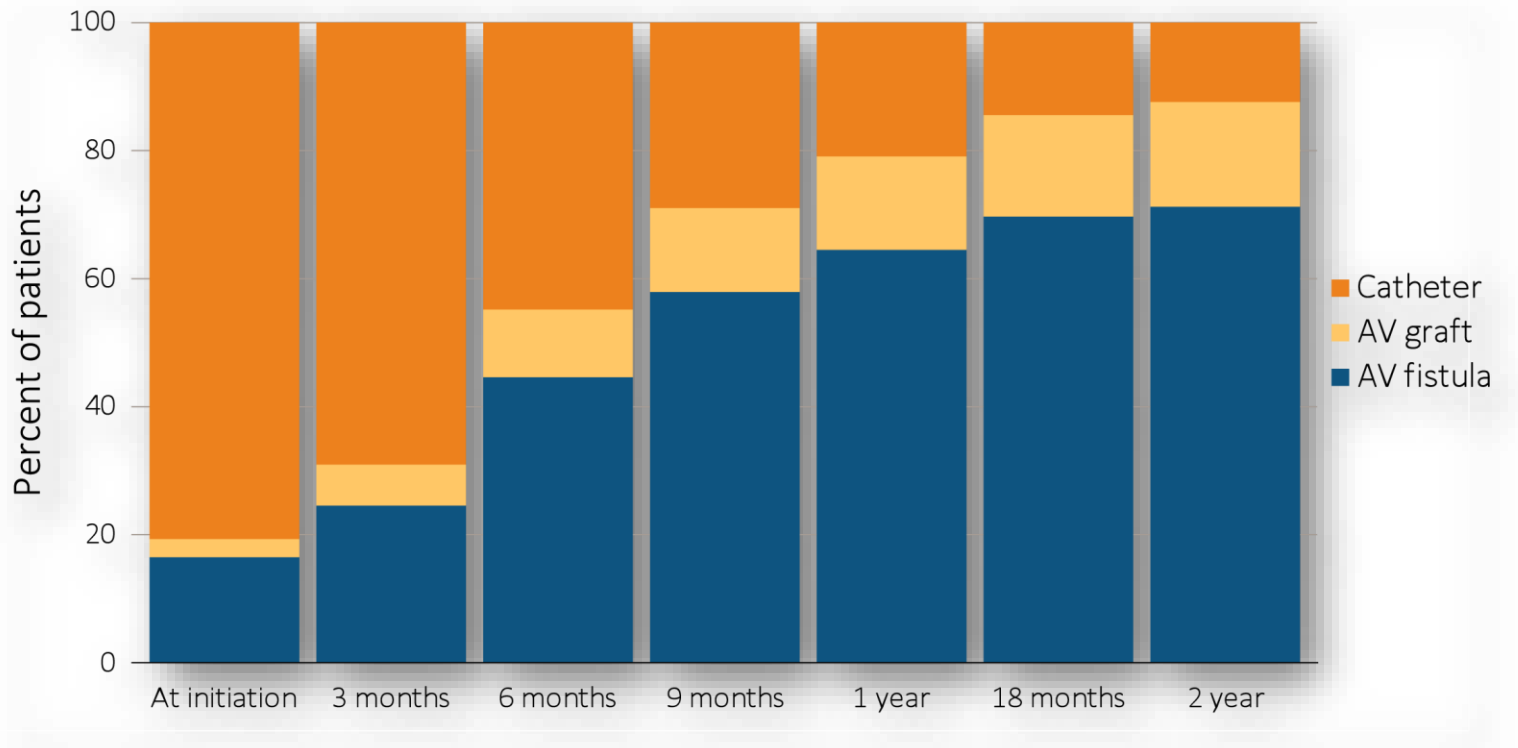
WWW.USRDS.ORG/ADR

Vascular access use at hemodialysis initiation



- Underutilization of PD
  - 7.2% prevalence of PD
  - >40% of nephrologists practicing in United States recommend CAPD/APD as initial therapy

Changes in type of vascular access during first year of dialysis



- 68% still using catheters after 90 days
- 36% failed to mature

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Benefits of PD

- Greater flexibility and quality of life
- Lower access-related morbidity and mortality
  - Admission for infection, 10.2% per pt yr. vs 6.7% per pt year.
  - Risk of death from septicemia 9.8 vs 4.8
- Improved survival benefit during first 2 years
  - 8% lower mortality compared with HD
- Lower cost ($73,008/yr vs $53,446/yr)
  - Total healthcare cost $173,507 vs $129,997

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PD Failure

- 19-35% transition from PD to HD during first 2 years
  - Modality, system and patient related
    - Infection (37%), ultrafiltration failure (19%), catheter malfunction, lack of infrastructure/training, malnutrition, diabetic complications, hernia formation, socioeconomic

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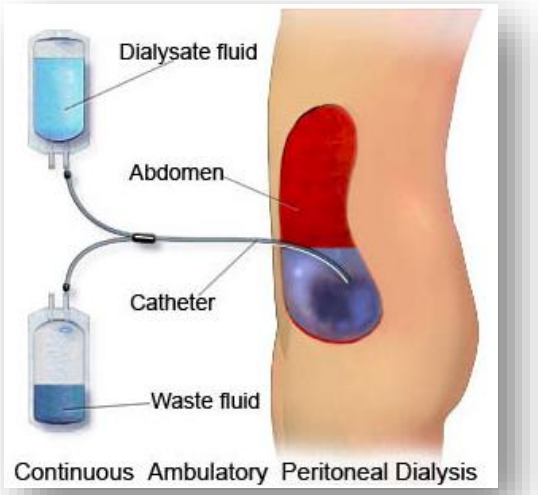
Types of PD

- **Continuous ambulatory peritoneal dialysis (CAPD)**
  - Multiple exchanges during the day, followed by overnight dwell
- **Automated peritoneal dialysis (APD)**
  - Cycler to perform multiple overnight exchanges
  - Variations include continuous cycler (CCPD), nightly intermittent (NIPD), and tidal (TPD)

- ❑ Similar mortality and hospitalization rates, risk of peritonitis, and fluid leak.
  - ❑ APD may be associated with relatively more time for work and social activities.



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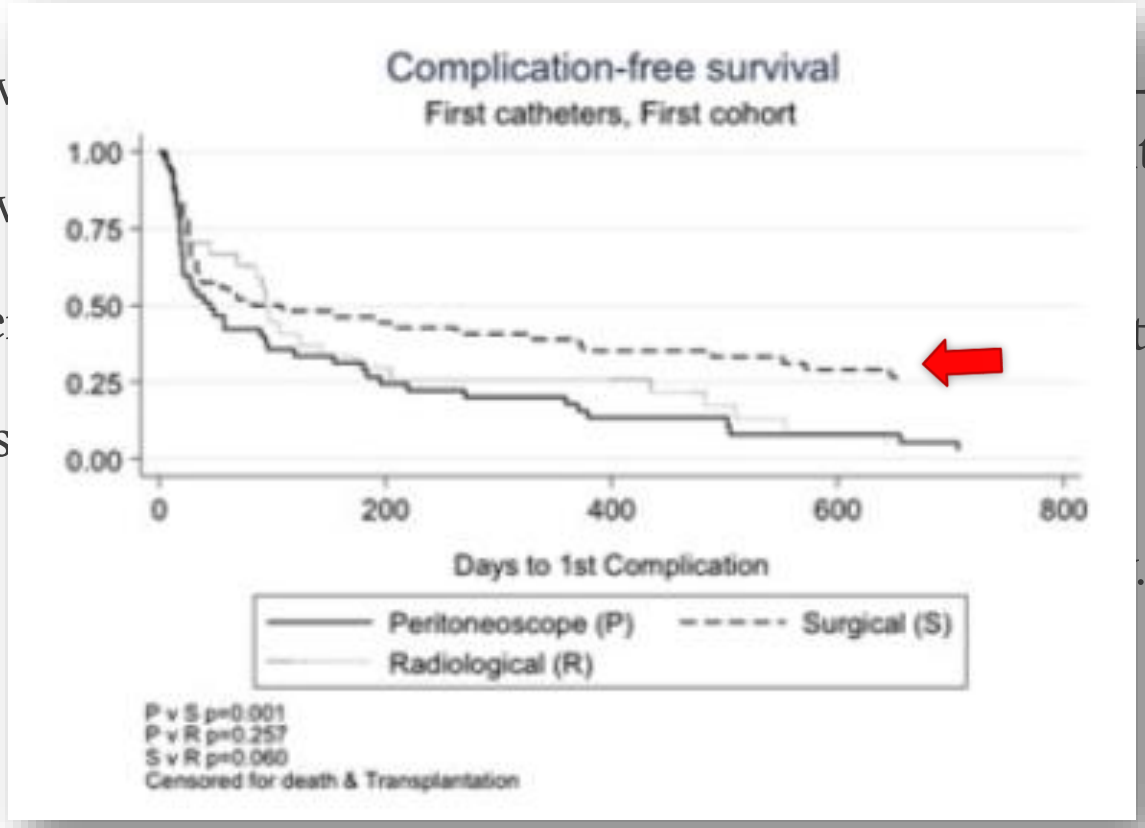
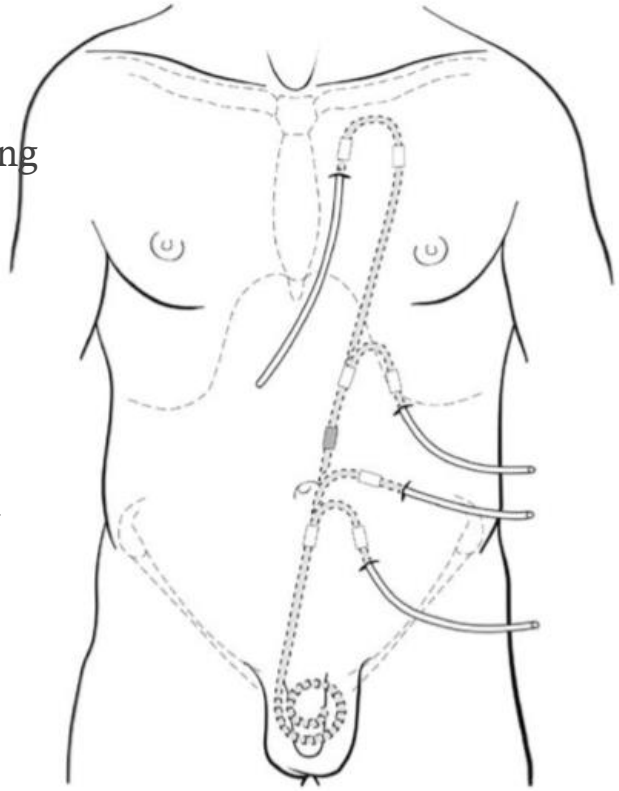
Insertion techniques

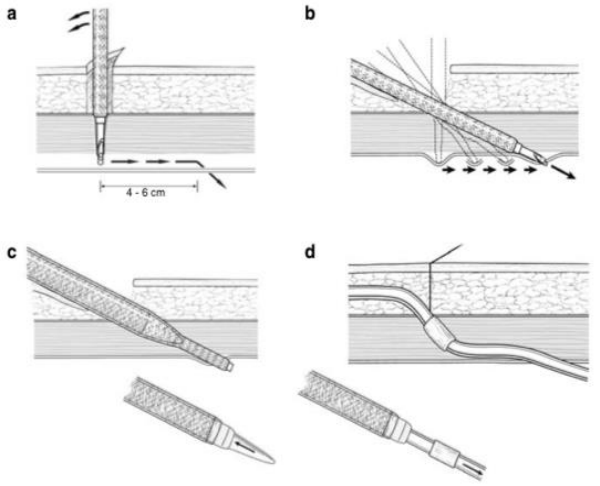
- Interv
- Interv
- Gene
- Trans



Adjunctive procedures

- Rectus sheath tunneling
- Omentopexy
- Epiploectomy
- Adhesiolysis
- Occult herniorrhaphy
- Sigmoidopexy
- Pursestring closure
- Laparoscopic fixation
- Catheter imbedding





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Contraindications

- Absolute
  - Loss of peritoneal function or extensive adhesions that limit flow
  - Uncorrectable mechanical defect
    - Irreparable hernia, omphalocele, gastroschisis, diaphragmatic hernia
- Relative
  - Fresh foreign body (vp shunt, vascular prostheses)
  - Peritoneal leak
  - Habitus
  - Inflammatory or ischemic bowel disease
  - Abdominal wall or skin infection
  - Severe malnutrition
  - Frequent diverticulitis

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Catheter Complications

- Infection
- Outflow failure (5-20%)
  - Constipation (anytime)
  - Catheter malposition (painful) (days)
  - Occlusion by thrombus (early), omentum or adhesions (weeks)
  - Kinking (soon after placement, positional)
  - Loss of dialysate from peritoneal cavity
- Pericatheter Leak
- Abdominal Wall Hernia
- Catheter cuff extrusion
- Intestinal perforation

Infectious

- Primary vs secondary (worse outcomes)
- Abdominal pain and turbid effluent
- Dialysate WBC usually to above 100 cells/mm3 (may not if short dwell time)
- Gram stain/culture
  - Coag neg staph vs enteric bacteriodes or polymicrobial

Noninfectious complications of CPD

- Drain pain (acidic pH, malposition, hyperglycemic solution, sump action)
  - Bicarb neutralization
  - Slowing the rate of infusion
  - Injection of local anesthetics into the dialysis solution before infusing
  - Incompletely draining the fluid after a dwell period
  - Catheter replacement
- Pleural effusion
- GERD and delayed gastric emptying
- Hemoperitoneum
- Electrolyte disturbances

Indications for removal

- Refractory peritonitis (5days)
- Relapsing peritonitis (within 4 weeks or same species within 8 weeks)
- Fungal or mycobacterial peritonitis.
- Peritonitis occurring in association with intra-abdominal pathology, such as an abscess, perforation, or infarcted bowel.
- Culture-negative peritonitis with persistent symptoms and high peritoneal white blood cell count.

- Thank you
- Sentara Vascular Symposium
- 2018