International Differences in Location & Use of AV Access: Results of the DOPPS

Haimanot (Monnie) Wasse, MD, MPH
Professor of Medicine
Director, Interventional Nephrology
Vice Chair, Dept of Medicine
Rush University Medical Center
Chicago, IL

Veith Symposium
November 17, 2018

Disclosures
• None

What is DOPPS?
• The Dialysis Outcomes Practice Patterns Study
• Started in 1996
• Resulted in series of prospective studies in 20+ countries
• Includes:
  • In-Center Hemodialysis
  • CKD Outcomes (CKDopps)
  • PD Outcomes (PDopps)
  • Identification of modifiable clinical practices to improve patient outcomes

70,000 patients

Study Methods
• Prospective cohort study, 2009-2015
• US, Japan, Europe/ANZ
  • 3,850 pts receiving 4,247 new AVF’s
  • 842 pts receiving 1,129 new AVG’s
  • AVF location trends based on 1996-2015 DOPPS

• Outcomes
  • AVF location
  • Time to first successful use
  • Continued use (≥ 30 days)

Pisoni et al, ARDI, 2018
International Differences in AVF location

Lower-arm AVF rate is low in young men

- Among those with lowest risk of AVF maturation failure:
  - < 50% of U.S. males < 50 yo had AVF’s located in lower arm between 2012-15 vs. 73% in Europe/AZ and 98% in Japan

- Implications: exhausting AV access sites, complications of upper arm high-flow AVF’s

Successful AVF use differs internationally

- Defined as using new AV access for ≥ 30 continuous days
  - 87% Japan
  - 67% Europe/ANZ
  - 64% US (similar to USRDS 2016 report)

- AVF use more successful in upper vs. lower arm AVF—except in Japan

Time to AV access use differs widely

- Median days to AVF cannulation:
  - Japan: 10
  - Europe/ANZ: 46
  - USA: 82

- Median days to AVG cannulation:
  - Japan: 6
  - Europe/ANZ: 24
  - USA: 29

Possible reasons for differences in AVF location

- Fistula First Initiative—mirrors timing/trend to shift in upper arm AVF’s in U.S.

- High AVF maturation failure rates in U.S., esp lower arm
  - Not supported in Europe/Japan

- Limited number of experienced/skilled surgeons with broad AVF repertoire (snuff box, distal, prox radialcephalic, Gracz-type AVF’s)

- Lack of widespread pre-operative U/S vessel mapping

- Lack of attention to vessel preservation

Possible reasons for greater time to AV access use in U.S.

- Need for secondary procedures given body habitus
  - Superficialization, transposition

- Hesitancy around limited/deep cannulation segments

- Nephrologists unfamiliar with AV access examination

- Lack of cannulation expertise/training in dialysis unit
How does Japan achieve >90% AVF use

Despite older mean age in Japan:
  • Much lower median blood flow rate (200 ml/min) vs. U.S. (425 ml/min)
  • Possible d/t smaller body weight, longer average treatment time
  • Use of smaller gauge needles
  • Excellent surgical technique

Take Away’s

  • Patients don’t necessarily require high flow AVF’s—just a modified dialysis prescription
  • Expand use of home and nocturnal dialysis
  • Improvements are needed in surgical expertise/training
  • EndoAVF may increase AVF useability & reduce time to cannulation in certain patient populations

Thank you for your attention!