Endovascular or Surgical AV Access Creation: Which Option for Which Patient?

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Disclosures
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I have the following potential conflicts of interest to report:

- Consulting
- Employment in industry
- Stockholder of a healthcare company
- Owner of a healthcare company
- Other(s)

I do not have any potential conflict of interest
2019 KDOQI Guidelines

“The best possible fistula with the least possible interventions”

Patient

Needs, wishes, expected lifetime with ESKD

ESKD Life-Plan

Anticipated KRT options matched to patient goals

Dialysis Access

“The right access, in the right patient, at the right time for the right reasons”

Why are the Results of Distal AVF so Poor?

MAPPING REPORT:

Forearm cephalic vein of 3 mm

Patent Radial artery 2 mm

Patent Ulnar artery 3 mm
Quality of the Artery

Image courtesy Alexandros Mallios, MD
Patient Selection and Mapping By Surgeons Are Key
When in Doubt About Distal – Think Proximal Radial Artery

Image courtesy Alexandros Mallios, MD
Proximal Radial Artery Inflow – 2 Options

Journal of Vascular Surgery

Proximal radial artery arteriovenous fistula for hemodialysis vascular access
William C. Jennings, MD, a Alexandros Mallios, MD, b Nasir Mushtaq, PhD, MBBS, MPH c Tulsa, Okla; and Paris, France

Journal of Vascular Surgery

Midterm results of percutaneous arteriovenous fistula creation with the Ellipsys Vascular Access System, technical recommendations and an algorithm for maintenance
Alexandros Mallios, MD, Pierre Bourquelot, MD, Gilbert Franco, MD, Hadia Hebibi, MD, Hortence Fonkoua, MD, Mahmoud Allouache, MD, Alessandro Costanzo, MD, Romain de Blic, MD, Ghazi Harika, MD, Benoit Boura, MD, William C. Jennings, MD
When Anatomy is Appropriate - pAVF
pAVF Creation with Ellipsys™ Vascular Access System
Midterm Results with Ellipsys System

- May 2017 – today >300 patients
- 99% technical success
- Mean Follow-up 1 year (1-36 months)
- 62% Primary patency
- 88% Primary assisted patency
- 96% Secondary patency
Midterm Results with Ellipsys System

No procedure-related adverse events in this study

Mean access flow: 925ml/min
  (brachial artery / range: 425-1440)

No steal syndrome

12% superficializations (14 patients)

Average maturation time: 4.1 weeks

10% - early cannulation (<2 weeks)
Midterm Results with Ellipsys System

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Surgical vs. Percutaneous AVF

Primary Patency

Secondary Patency

Wrist AVF vs pAVF

Primary Patency

Secondary Patency

Elbow AVF vs pAVF

Primary Patency

Secondary Patency

Early vs. Late pAVF

Patient Eligibility for Ellipsys

- Prospective study
- 100 consecutive patients
- 63% Eligible for Ellipsys system pAVF
- 45% Eligible for distal
- Only 17% over 70 years old
Candidate for a distal AVF that will mature without need for many interventions

Think proximal radial artery to deep communicating vein fistula, is puncture possible?

Create surgical distal AVF

Yes

Surgical PRA / DCV AVF

No

Radial Dominant Patient

Proximal Ulnar / DCV AVF

Consider:
1. PRA with forearm cephalic?
2. Brachicephalic
3. Brachiobasilic (more common)
4. No superficial veins – Brachial vein AVF or Axillary loop graft