Outcomes of percutaneous intervention of malfunctioning dialysis access via a transradial approach

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Background

• NFK/DOQI recommends percutaneous interventions for failing AV accesses

• Increasing experience with transradial approach for coronary interventions

• Disadvantages of traditional approach
  • Reflux arterial limb
  • Dilution of contrast through native branches

Trans-radial access: Advantages/Disadvantages

**Advantages**
- Visualize and treat multiple lesions in arterial and venous limbs
- One puncture site
- Efficient approach for juxta-anastomotic lesions
- Hemostasis easily achieved with manual pressure
- Ability to dialyze immediately post-intervention
- Less radiation
- Shortened procedure time
- Uses basic tools

**Disadvantages**
- Radial artery complications
- Unable to accommodate large sheath sizes
- Learning curve
- Approach not indicated in patients with non-palpable radial pulse or positive Allen’s test
Transradial Access

Technique

- Ultrasound access, single puncture
- Hydrophilic transradial sheath
- ‘trans-radial cocktail’
  - NTG (100 mg)
  - Heparin (2500 u in 50 ml NS)
  - Verapamil (2.5 mg; if SBP > 100 mm Hg)
- Glidecath in brachial artery
- Visualizes both arterial and venous system
- Percutaneous angioplasty
- Transradial band for hemostasis
Treatment of Juxta-anastomotic stenosis

Pre-treatment
Flow vol: 405ml/min

PTA
(7x40 mm balloon)

Post-Treatment
Flow vol: 1540 ml/min
Methods

Cohort
• September 2010 - October 2013
• Retrospective Review
• 40 patients underwent 55 TRA

Procedure Type
• 50 Therapeutic
  – 54 for stenosis
  – 1 for thrombosis
• 5 Diagnostic

Type of Access
• 37 AVF
• 3 AVG

Type of Lesion
• 28 Juxta
• 11 Venous
• 11 Both

Outcomes
1. Clinical success
2. Technical success
3. Complication rate
4. Functional patency
5. Increase in flow rates
Results

• Technical Success = 88% (44/50)
  – 5/6 required secondary puncture site

• Clinical Success = 84% (42/50)

• Complication = 1.8% (1/55)
  – Rupture of pseudoaneurysm requiring ligation of fistula
Functional Patency

Mean Followup
14.6 months

Functional patency

1 mo = 88.5% (23/26)
6 mo = 84.2% (16/19)
12 mo = 83% (10/12)
Flow Volume

Increase in Flow Volume post TRA PTA

$P = 0.0105$

Flow volume (ml/min)

Pre.

Post.

Trans-radial Intervention

637 ml/min → 1094 ml/min
The transradial approach for malfunctioning dialysis access

• Feasible and safe alternative

• Low complications

• Visualize both arterial and venous limbs

• Multiple lesions can be treated through one puncture site
Thank you – Questions?

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Treatment of Juxtaanastomotic Lesion

Basilic vein