Revascularization Strategies –
Angiosome guided enough?
or
Total Revascularization?

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Disclosure

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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
Determinants of wound healing

Predictors of wound non-healing after initial EVT:

- ESRD with dialysis
- albumin level <3.0 g/dL
- CRP level >5.0 mg/dL
- major tissue loss (beyond MTPJ)
- wound infection wound depth (UT grade 3)
- duration of ulcer > 2 months
- insulin use
- no BTA runoff

Determinants of wound healing

Analysis from J-Beats registry

Shiraki T et al. Eur J Vasc Endovasc Surg. 2015 May;49(5):565-73

Figure 3. Risk stratification by number of risk factors after multivariate analysis. Stratification of the patients by number of risk factors yielded three significantly different estimates for wound healing rate at 24 months: 85% for low risk (black line, n = 386), 66% for moderate risk (red line, n = 371), and 39% for high risk (green line, n = 114) (p < 0.01 for each comparison), respectively.
Multiple or Single Tibial Revascularization?

- Retrospective analysis of 761 patients in the Vascular Quality Initiative registry
- **Group 1** = 1 vessel tibial intervention (62.1%)
- **Group 2** = 2 or more vessel tibial intervention (39.1%)
- **No differences** between groups for Major amputation (9.0% and 7.6%; P = .6), Patency (89.7% vs 86.8%; P = .45), or AFS (P = .372)

In the absence of Point of Care (POC) determinants during index intervention, it is difficult to know!

Sufficient blood supply

Wound healing before restenosis
Demand

- Size of wound (Rutherford Status)
- Infection
- DM
- Renal Failure

There patients are at high risk of adverse wound outcomes....

→ Perhaps aggressive revascularization change that...
Supply

• Treating the Wound Related Artery (WRA) approach
  – Ability of WRA to achieve **optimal acute POBA** result ie absence of recoil dissection
  – **Chronic patency** single WRA to give sufficient time for wound healing @ 3 months
    • Length of lesion
    • Use of adjuncts of patency eg DCB DES

• Total revascularization approach
  – Potential **hazardous effects of re-stenosis** in treating non essential vessels
  – Is re-stenosis of a tibial vessel relevant when a TMA is planned?
  – Use of adjuncts eg DES,DCB to reduce risk of restenosis
CASE EG TO ILLUSTRATE THE POINT
75 Male
Diabetes
ESRF
2nd Toe Osteo with cellulitis

W2 I3 fI2

30 cm Long ATA Occlusion
Antegrade attempt failed

Retrograde US puncture

3mm JADE Balloon + partial arch POBA

Post POBA
Bullfrog Dex +
Post Dil 24 ATM 3mm NC JADE Balloon
Healed at 2 months

ATa and DP patent @ 14 months

Single Vessel Enough

✓ DM
✓ ESRF
X INFECTION
✓ GOOD ACUTE ANGIOGRAPHIC RESULT
✓ ABILITY OF PRIMARY VESSEL TO SUSTAIN WOUND HEALING AT 3 MONTH

W2 I3 fl2
75 Male
Diabetes
ESRF
2nd Toe Osteo with cellulitis
Plantar loop Armada XT 2x20
POBA JADE 3mm HP ATA/PTA
No DCB due to severe infection
☐ DM
☐ ESRF
☐ INFECTION
☐ GOOD ACUTE ANGIOGRAPHIC RESULT
☐ ABILITY OF PRIMARY VESSEL TO SUSTAIN WOUND HEALING AT 3 MONTH

Multi Vessel required!

W3 I3 fI3
Summary

• CLI in Diabetics and Renal Failure has many moving parts (ischemia, infection etc etc)
• Important for all interventionalist to “look at the wound” before a single puncture
• In patients with small minimally infected wound, a single “Wound Related Artery” approach is sufficient provided optimal balloon angioplasty is achieved
• In large infected wounds across multiple angiosomes, a total revascularization approach is warranted
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