THE PEDAL ARCH IN DIABETIC PATIENTS

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Disclosure

Speaker name:

**NICOLA TROISI**

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
Angiosomes of the Foot and Ankle and Clinical Implications for Limb Salvage: Reconstruction, Incisions, and Revascularization


Christopher E. Attinger, M.D.
Karen Kim Evans, M.D.
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Peter Blume, D.P.M.
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Direct revascularization of the tibial vessels appears to result in improved wound healing and limb salvage rates compared with indirect revascularization. However, the quality of evidence on which these conclusions are based on is low.
BACKGROUND

Vascular Imaging of the Foot: The First Step toward Endovascular Recanalization

Marco Manzi, MD • Giacomo Cester, MD • Luis M. Palena, MD • Josef Alek, RT • Alessandro Candeo, RT • Roberto Ferraresi, MD

Teaching Points

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The impact of arterial pedal arch quality and angiosome revascularization on foot tissue loss healing and infrapopliteal bypass outcome

Hisham Rashid, FRCS, Hani Slim, MRCS, Hany Zayed, FRCS, Dean Y. Huang, FRCR, C. Jason Wilkins, FRCR, David R. Evans, FRCR, Paul S. Sidhu, FRCR, and Michael Edmonds, MD, London, United Kingdom

J Vasc Surg 2013;57:1219-26

• 154 patients with CLI underwent 167 infrapopliteal bypasses
• Significant difference in healing and time to healing between the complete, incomplete and absent pedal arch (P=.0264)
• The rates for healing and time to healing were directly influenced by the quality of the pedal arch rather than the angiosome revascularized
TWO RETROSPECTIVE STUDIES

1st study

- analysis of clinical outcomes after peripheral revascularization on the basis of the pedal arch status

2nd study

- analysis of clinical outcomes after BTK revascularization on the basis of the pedal arch status or the angiosome revascularization

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1STM – AIM OF THE STUDY

Aim of this study was to evaluate the impact of pedal arch quality on tissue loss and time to healing in diabetic patients with critical limb ischemia undergone endovascular revascularization.
Between January 2014 and June 2015 153 diabetic patients with CLI underwent endovascular peripheral revascularization in our Center.

Final angiography of the foot was used to divide the patients in three groups according to the final status of pedal arch: complete pedal arch (CPA), incomplete pedal arch (IPA) and absent pedal arch (APA).
**1st - METHODS (2)**

Complete pedal arch (CPA)  Incomplete pedal arch (IPA)  Absent pedal arch (APA)

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1st - STATISTICAL ANALYSIS

✓ All data concerning the procedures was prospectively collected in a dedicated database with about 80 fields

✓ Time to healing and estimated 1-year outcomes with Kaplan-Meier curves in terms of freedom from minor amputation, limb salvage, and survival were evaluated and compared between the three groups

✓ Statistical significance was defined at the P < .05 level
1st - RESULTS (1)

TARGET VESSEL

- CIA 2 (1.3%)
- EIA 3 (2%)
- DFA 1 (0.7%)
- SFA 50 (32.7%)
- POP 17 (11.1%)
- ATA 42 (27.5%)
- PTA 29 (20%)
- Per 9 (5.9%)

✔ Target vessel revascularization obtained in 125/153 cases (81.7%)
1st - RESULTS (2)

Complete pedal arch (CPA) = 44 (28.8%)
Incomplete pedal arch (IPA) = 70 (45.8%)
Absent pedal arch (APA) = 39 (25.4%)
$1^{st}$ - RESULTS (3)

WOUND HEALING (%)
Patients with wounds n. 128

$P = .002$

CPA (78.1%)
IPA (47.4%)
APA (32.4%)
$1^{st}$ - RESULTS (4)

WOUND HEALING WITHIN 3 MONTHS (%)

Patients with wounds n. 128

$P = .003$

- CPA (40.6%)
- IPA (16.9%)
- APA (16.2%)
1st - RESULTS (5)

1-YEAR FREEDOM FROM MINOR AMPUTATION

\[ P = \text{n.s.} \]
1st - RESULTS (6)

1-YEAR LIMB SALVAGE

$$P < .001$$
1st - RESULTS (7)

1-YEAR SURVIVAL

\[ P = 0.002 \]
Aim of this study was to evaluate the impact of pedal arch status and direct angiosome revascularization on clinical outcomes in diabetic patients with foot wounds undergone endovascular below-the-knee (BTK) revascularization.
2nd - METHODS

- Between January 2014 and June 2015 93 diabetic patients with foot wounds underwent endovascular revascularization of at least one below-the-knee (BTK) vessel.

- The correlation between the localization of the wound and the revascularized BTK vessel was used to classify the procedures in direct-angiosome revascularization (DAR) and non direct-angiosome revascularization (n-DAR).

- Final angiography of the foot was used to divide the patients in three groups according to the final status of pedal arch: complete pedal arch (CPA), incomplete pedal arch (IPA) and absent pedal arch (APA).

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2nd - STATISTICAL ANALYSIS

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☑ Time to healing and estimated 1-year outcomes with Kaplan-Meier curves in terms of freedom from minor amputation, limb salvage, and survival were evaluated and compared

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DAR was obtained in 55/93 cases (59.1%)

ATA 46 (49.5%)
PTA 33 (35.5%)
Per 14 (15%)

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2nd - RESULTS (2) – PEDAL ARCH

Complete pedal arch (CPA) = 24 (25.8%)
Incomplete pedal arch (IPA) = 40 (43%)
Absent pedal arch (APA) = 29 (31.2%)
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2\textsuperscript{nd} - RESULTS (4) – PEDAL ARCH

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2nd - RESULTS (5) - DAR

1-YEAR FREEDOM FROM MINOR AMPUTATION

\[ P = \text{n.s.} \]
2nd - RESULTS (6) - DAR

1-YEAR LIMB SALVAGE

\[ P = \text{n.s.} \]

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2nd - RESULTS (7) - DAR

1-YEAR SURVIVAL

\[ P = \text{n.s.} \]

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2nd - RESULTS (8) – PEDAL ARCH

1-YEAR FREEDOM FROM MINOR AMPUTATION

\[ P = \text{n.s.} \]

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2nd - RESULTS (9) – PEDAL ARCH

1-YEAR LIMB SALVAGE

\[ P = .02 \]

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2nd - RESULTS (10) – PEDAL ARCH

1-YEAR SURVIVAL

\[ P = .02 \]

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CONCLUSIONS

✓ In our experience pedal arch quality had a great positive impact on time to healing, limb salvage, and survival in diabetic patients with CLI undergone peripheral endovascular procedure

✓ DAR is not a predictor of good outcomes in diabetic patients undergone endovascular BTK procedure

✓ No difference in terms of freedom from minor amputation was found in all subgroups analyzed

✓ The presence of a complete pedal arch could be considered predictive of good outcomes in diabetic patients with CLI
Thank you for your attention

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