Perfusion angiography for optimizing planning and treatment of diabetic foot

Jim Reekers, MD, PhD, EBIR, FSIR
Interventional radiology
University Amsterdam, UMC
The Netherlands
Disclosure

Speaker name: 

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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
Disclosure

• Institution research grant from philips.
Standarized foot angiography for measuring Total Foot Perfusion.

- Dedicated **foot rest** to immobilize the foot.
- Rotation C-arm ~ **40 degrees contralateral**.
- Contrast injection from the **mid-poplitea** artery.
- High density (320) contrast, iso-osmolar to maintain bolus and to avoid calf cramps. (visipaque)
- **Pump injection** with 9 cc in 3 seconds.
- Pre- and post angiography should be in same position!!

**This protocol in mandatory**
Post processing
Perfusion angiography measurements in diabetic foot patients.

1: The absolute increase in total foot perfusion after revascularization.

2: The functionality of the sympathetic nervous system.
Measuring the absolute increase in Total Foot Perfusion (TFP) after revascularization.

Perfusion angiography pre- and post intervention.
How to measure the change in total foot perfusion (TFP) after revascularization?

Measuring the peak

Measuring the area under the curve
Preliminary data

• No increase and or decrease in total foot perfusion has a high correlation with poor outcome.

• Increase in total foot perfusion has a high correlation with good outcome.
Measuring the functionality of the sympathetic nervous system.
How to measure the functionality of the sympathetic nervous system?

• Measuring the change in total volume flow after local blocking of the sympathetic nervous system with an Alpha blocker. (Tolazoline)
How to use perfusion angiography in planning and treating diabetic foot disease?
Perfusion angiography algorithm in diabetic foot disease and neuro-ischemic ulcer

Standarized basic angiography of the foot → Perfusion angiography

Intervention

Post intervention angiography of the foot → Perfusion angiography

Increase in TFP

No-increase in TFP

Post intervention angiography with alpha blocker to test the sympathetic nervous system of the foot.

Perfusion angiography

40°

Functional

Non-Functional
Conclusion

A: Increase in Total Foot Perfusion (TFP)
   – Stop procedure.
   – Good outcome to be expected.

B: No increase or a decrease in TFP
   – Try to open more vessels to the foot.
   – Iloprost?

C: Functional sympathetic nervous system
   – Good outcome to be expected.

D: Non-functional sympathetic nervous system
   – Poor outcome to be expected.
   – Do NOT plan reintervention.
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