How to guide your intervention with perfusion angiography.

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Disclosure

I have the following potential conflicts of interest to report:

Freelance consultant for Philips medical
• Have I done enough?

• Must I try to open more vessels?

-Time ?
-Extra costs ?
-Risks ?
-Logistics ?
-Experience ?
• Good angiographic foot circulation after revascularization is **not always** a predictor for good outcome.

• Single vessel revascularization can be enough for wound healing.
Foot Circulation

Foot perfusion
Total foot perfusion

Not only vessels seen on angiography.
Total foot perfusion

Macro-circulation

Micro-circulation
Total foot perfusion

Arterial

Venous

Microcirculation.

80%

10%

10%
Perfusion angiography
Literature

• 6 publications show a relation between perfusion angiography and clinical outcome.

Non of these studies used a standardised acquisition and data analyses protocol !!!!!!
\[ P = V \cdot d \cdot t \]

Factors influencing perfusion imaging.

• **Volume**
  - Different ROI
  - Different projection
  - Different magnification

• **Density**
  - Different Contrast density and/or volume
  - Different Injection point (catheter tip)
  - Different projection
  - Different magnification

• **Time**
  - Different acquisition time
> 20% increase in **Peak Density** perfusion after revascularization.

Odds of 2.5 for > 2 category improvement on Rutherford scale.

*First preliminary controlled data*
Total Foot Perfusion
measured as Peak Density ($d_{\text{max}}$)

3 options

1. Increases after revascularization
2. No change after revascularization
3. Decreases after revascularization
No improvement after revascularization
Decrease in perfusion

- Spasm
- Collateral Steal
- Thrombus embolization
- (DCB particles embolization) (?)
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Change in **total foot perfusion** (d\(\text{max}\)) could be a new endpoint parameter of an intervention.

*More studies are coming*