Healing time of ischaemic lesions following infrainguinal revascularization.

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Disclosures:

I have no conflict of interests
• Non healing wounds in patients with critical limb ischaemia, despite successful revascularization, are a source of ongoing concern.
Complete healing is an outcome that is very seldom reported in studies of revascularisation for critical limb ischaemia (CLI)

In a computerised literature research (1985-2005) 1914 papers on revascularisation for CLI were identified. Complete ulcer healing was reported in 17 studies (0.9%)

Hoffmann et al; Eur J Vasc Endovasc Surg 2007
Predictors of wound healing time

• Local wound factors (Dryness, local infection, local trauma)
• Wound depth
• Patient’s comorbidities (Diabetes, obesity, malnutrition)
• Medications that may impact on wound proliferation (NSAIDs, steroids, chemotherapeutic agents)
• Lifestyle factors (smoking, alcohol abuse)
• direct vs indirect revascularization
• 148 patients (150 limbs) with critical limb ischaemia and tissue loss (Fontaine IV) were followed up prospectively for one year after infrainguinal bypass.

• Multivariate Cox regression analysis provided risk ratios of clinically relevant factors for non healing tissue lesions.

Soedestroem et al; Eur J Vasc Endovasc Surg 2008
Results

• Less than half of the patients achieved complete tissue healing within a period of 6 months postoperatively and at 12 months the overall healing rate was not more than 75%.

• Diabetes was the dominant risk factor for prolonged tissue healing time (log rank test, p=0.001)

Soedestroem et al; Eur J Vasc Endovasc Surg 2008
Diabetes was a risk factor for prolonged tissue healing time (log rank test, p=0.001).
• 58 consecutive critical limb ischaemia (CLI) limbs of 54 diabetic patients presenting with tissue loss underwent isolated popliteodistal vein bypass.

• Bypasses were classified into direct and indirect groups based on the angiosome concept, whether feeding artery flow to the site of ischaemic ulcers was achieved or not.

Lejay et al; Ann Vasc Surg 2014
Results

• Median ulcer healing time was $56\pm18$ days in the direct group ($n=36$) and $112\pm45$ days in the indirect group ($n=22$, $p=0.01$).

• There was no difference between the groups in terms of survival or primary patency.

• Limb salvage rate was significantly higher in the direct group than in indirect group.

Lejay et al; Ann Vasc Surg 2014
In a prospective observational study 212 patients with CLI underwent successful infrapopliteal angioplasty to assist wound healing and limb salvage from June 2014-March 2016.

Propensity score matching was performed to minimise intergroup differences in baseline characteristics and 73 matched pairs were obtained.

Elbadawy at al; Eur J Vasc Endovasc Surg 2018
Results

12 months after angioplasty the primary patency rates were 58% and 62% (p=0.756) and complete wound healing 80.8% and 63% (p=0.02) for the direct revascularization and indirect revascularization groups respectively (angiosome concept).

Elbadawy at al; Eur J Vasc Endovasc Surg 2018
The graph shows the healing rate over time for two groups: Direct group and Indirect group. The graph indicates that the Direct group had a higher healing rate compared to the Indirect group. The healing rates at 12 months are 80.8% for the Direct group and 63% for the Indirect group. The statistical significance (P=0.027) was determined by the Log Rank test.
• Multivariate analysis demonstrated that the revascularization method (adjusted HR 1.61) and Rutherford classification (adjusted HR 0.53) were the only variables that independently affected complete wound healing.

Elbadawy at al; Eur J Vasc Endovasc Surg 2018
Conclusions

• Complete healing of ischaemic tissue is a slow process even after a successful revascularization

• Angiosome targeted revascularization appears to improve healing rate of ischaemic ulcers
Conclusions

• Wound healing is a complex multifactorial process. We believe that it is an important patient-centered outcome and it should be included in studies evaluating patients with ulcers and CLI.
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