Special Considerations In Treating CLI in ESRD-Dialysis Patients Endovascularly

Roberto Ferraresi
Head of the Peripheral Interventional Unit

HUMANITAS
Bergamo – Italy
www.robertoferraresi.it

Disclosure
Roberto Ferraresi, MD

I have the following potential conflicts of interest to report: consulting, travel reimbursement, teaching courses, training, proctoring:
- Medtronic
- Boston Scientific
- Abbott
- LimFlow
- Tarano
- Cook
- Biotronik

1. CLI in ESRD: the problem
2. Optimistic approach
3. Pessimistic approach
4. Realistic approach

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- 322 ESRD-HD pts.
- End points: incidence of CLI & all-cause of death

Conclusion
1. The complications of CLI are among the main causes of death in ESRD patients; all patients who died of these causes were hospitalized and most of them needed morphine for pain.
2. These patients died due to infection, sepsis or multiorgan failure after being bedridden.

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Peripheral Arterial Disease in Patients With End-Stage Renal Disease: Observations From the Renal-Artery Disease and Practice Patterns Study (RADS). Circulation. 2008;118:1914–1922.

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PAD is common in hemodialysis patients and is associated with increased risk of cardiovascular mortality, morbidity, hospitalization and reduced QOL. CLI & ESRD are the markers of a poor prognosis, comparable with that of colon cancer.

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Conclusions
- 107 ESRD-HD pts
- 132 CLI limbs
- PTA was successful in 97% of cases
- Limb salvage rates at 12, 24, 36, 48 months were 86, 84, 84, 62% respectively
- 49% of the patients died during follow-up

Conclusions
- 564 HD pts
- 681 CLI limbs
- ATK+BTK PTA

CONCLUSIONS:
Although patient survival remains poor, the limb salvage rate after EVT is favorable among those on HD with CLI due to isolated Bk disease.

Conclusions
- 118 ESRD-HD pts versus 108 non-ESRD-HD pts
- CLI limbs
- ATK+BTK PTA

Conclusions
The long-term outcome after PTA may be fully acceptable in haemodialysis patients who are at the highest risk of cardiovascular disease.

According to some papers limb salvage rate after EVT in ESRD-HD pts with CLI is favorable

Patients survival remains poor
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Conclusion
Clinical efficacy of BTK angioplasty is limited in pts with ESRD because of the severely diseased pedal arteries.

Conclusion
... the inferior wound-healing and limb salvage rates observed in patients with renal failure bring to question the utility of infrapopliteal angioplasty in this population.

Conclusion
ESRD pts yielded a more affected pedal arch, and were at approximately twice the risk of wound-healing failure, reintervention, and death or major amputation than non-ESRD patients.

Conclusion
In comparison with non-HD patients, the clinical efficacy of infrapopliteal EVT for HD patients was poor.

| 29 ESRD patients |
| BTK-PTA |
| BTK-PTA was successful in 97% of cases whereas hemodynamic improvement was obtained in only 50% of the limbs treated |
| At 12 months, primary clinical success was 11% in pts with BTK PTA alone, 45% in pts with ATK + BTK PTA |

| 79 pts |
| 95 CLI limbs |
| 70 NO-ESRD/16 ESRD ESRD patients |
| Major amputation 14.9% non-ESRD and 43.7% ESRD pts |

| 92 pts |
| 117 CLI limbs |
| 49 ESRD-HD pts vs 43 no-ESRD-HD |
| BTK-PTA |

| 449 ESRD-CLI pts |
| 340 limbs “minor tissue loss” |
| 109 limbs “major tissue loss” |
| BTK-PTA |

| 1091 pts |
| 1310 limbs |
| 670 ESRD-HD pts (630 limbs) vs 421 no-ESRD-HD (480 limbs) |
| BTK-PTA |

Conclusion
Amputation free survival rates after PTA in all HD patients with tissue loss are <50% at 2 years, making their prognosis poor.

The HD group had a significantly lower rate of amputation-free survival rate (AFS)
Independent predictors of AFS in HD patients were
- Nonambulatory status
- Diabetes mellitus
- Albumin <3.0 g/dL
- LVEF <0.48
- No patent pedal arch arteries before EVT

In comparison with non-HD patients, the clinical efficacy of infrapopliteal EVT for HD patients was poor.
The majority of the Authors indicate that angioplasty in ESRD-HD pts with CLI has poor results due to:
• Severely diseased pedal arteries
• Wound healing failure
• Reintervention
• Major amputation

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Patient 1
- 39 yy old female
- Type 1 DM → onset at 14 yy
- ESRD-HD in the last 8 months
- Presentation: bilateral 1st toe gangrene
• 60 yy old female
• ESRD-HD in the last 41 yy (GN)
• Presentation: chronic dorsal ulcer

Patient 2

Causes of HD

GN
Type 1 DM
Type 2 DM
HBP
Other
ESRD-HD

41 yy HD
8 mm HD
2
1
Causes of HD

Quality of HD

Every patient is different! Do not refuse a potentially limb salvage treatment on the basis of prejudice.