Introduction

CLI is a chronic ischemic rest pain, ulceration or gangrene attributable to arterial occlusive disease. Complications of poor circulation can include ischemic ulcers or gangrene in the foot resistant to healing. Left untreated, the complications of CLI will result in amputation of the affected limb.

Aim of the work

Assessment of single tibial artery angioplasty in critical lower limb ischemic patients Rutherford 5 & 6 according to the following outcomes:
- Primary outcome: Rate of wound healing
- Secondary outcomes:
  - Primary patency rate
  - Limb salvage rate
  - 30-day mortality

Methods

Study design: prospective observational study
Sample size: 110 patients admitted to Vascular Surgery department at Mansoura University Hospital between June 2020 and May 2021.
Inclusion criteria:
- Population: patients with critical lower limb ischemia Rutherford 5&6
Exclusion criteria:
- Severely infected foot
- Patients with critical ischemia Rutherford 1, 2, 3 or 4
- Patients with known history to dye allergy
- Patients with severe renal impairment

Intervention: percutaneous balloon dilatation angioplasty. Initially, patients were classified into two groups; single-vessel and multi-vessel angioplasty.

Outcomes:
- Primary outcome: Rate of wound healing
- Secondary outcomes:
  - Primary patency rate
  - Amputation rate
  - 30-day mortality

Case 1

CTA of 60-year-old female patient DM, HTN, Lt LL CLI (Rutherford 6), ulcer on medial side of head of big toe

Intraoperative angiography of arterial tree of Lt LL:
A: angiography after dilatation of ATA, PTA
B: angiography of distal ATA, PTA, arch

Follow up of wound after revascularization and debridement at 1 month

Case 2

CTA of 66-year-old male patient DM, HTN, Rt LL CLI (Rutherford 6), heal ulcer

Intraoperative angiography of arterial tree of Rt LL:
A: dilation of PTA
B & C: angiography of distal PTA and arch after dilatation

Follow up of wound after revascularization and debridement at:
A: 1 month
B: 3 months

Results

Demographic data of the studied patients

<table>
<thead>
<tr>
<th>Variable</th>
<th>Single vessel (N=46)</th>
<th>Multiple vessel (N=64)</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (years)</td>
<td>Mean ± SD</td>
<td>52.67 ± 11.19</td>
<td>55.73 ± 14.27</td>
</tr>
<tr>
<td>Sex</td>
<td>Male</td>
<td>26 (56.5%)</td>
<td>43 (67.2%)</td>
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<tr>
<td>Female</td>
<td>20 (43.5%)</td>
<td>21 (32.8%)</td>
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<tr>
<td>BMI (kg/m²)</td>
<td>Mean ± SD</td>
<td>26.35 ± 2.31</td>
<td>28.88 ± 3.46</td>
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<tr>
<td>Hypertension</td>
<td>22 (47.8%)</td>
<td>41 (64.1%)</td>
<td>.069</td>
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<tr>
<td>DM</td>
<td>19 (41.3%)</td>
<td>40 (62.5%)</td>
<td>.628</td>
</tr>
<tr>
<td>Smoking</td>
<td>29 (63.1%)</td>
<td>43 (67.2%)</td>
<td>.491</td>
</tr>
<tr>
<td>Dyslipidemia</td>
<td>16 (34.8%)</td>
<td>37 (57.8%)</td>
<td>.017</td>
</tr>
<tr>
<td>Cardiovascular</td>
<td>8 (17.4%)</td>
<td>16 (25%)</td>
<td>.341</td>
</tr>
</tbody>
</table>

Disease free survival after 12-months was 83.5% in group A (single vessel) and 76.2% in group B (multiple vessels) with log rank test of 0.86

<table>
<thead>
<tr>
<th>Variable</th>
<th>Pre Mean ± SD</th>
<th>Post Mean ± SD</th>
<th>95% CI</th>
<th>Log Rank test</th>
<th>Survival at 12 months</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ankle brachial index (ABI)</td>
<td>0.384 ± 0.047</td>
<td>0.625 ± 0.014</td>
<td>0.014</td>
<td>0.008</td>
<td>83.5%</td>
</tr>
</tbody>
</table>

Follow up:
- Wound size and time to complete healing
- ABI at (1-4 weeks), 3 and 6 months

Conclusion

We found that patient with CLI due to occlusive disease involving tibial arteries, single tibial artery revascularization did not appear to have a limb salvage benefit inferior to multiple tibial arteries revascularization as it was statically insignificant. Further studies with larger sample size and longer follow up are needed to assess the independent risk factors for Limb Ischemia to reduce its incidence, and to review the current updates of angioplasty.