12 Commandments to Make BTK Interventions For CLI Succeed

ALI AMIN, MD, FACS, FACC, RVT
CHIEF OF ENDOVASCULAR INTERVENTIONS
READING HEALTH SYSTEM
READING, PA

Faculty Disclosure

- Consultant Medtronic, Boston Scientific, Cardinal Health, Volcano

12 Commandments For BTK Interventions For CLI

- Antiplatelet therapy
- Anticoagulation
- Access
- DSA
- Roadmap
- Magnification
- Wire; low profile
- Micro catheter
- Balloon; low profile
- Balloon; long length
- Long inflation time
- Medical Management

12 Steps For BTK Interventions

- Antiplatelet therapy
- Anticoagulation
- Access
- DSA
- Roadmap
- Magnification
- Wire; low profile
- Micro catheter
- Balloon; low profile
- Balloon; long length
- Long inflation time
- Play Mozart
**Endovascular Treatment of BTK**

- Endovascular treatment of the Infrapopliteal lesions is generally reserved for treating Critical Limb Ischemia (CLI).

- CLI is generally due to Chronic, advanced, multilevel atherosclerotic disease, esp. in diabetic patients.

**Treatment of BTK lesions**

- More challenging

- Smaller diameter vessels

- Longer lesions (stenosis or occlusion)

- Advance technical skills and appropriate tools are a must!

---

**Vascular Disease: A Generalized and Progressive Process**

- Atherosclerosis

- Thrombosis

- ACS

- Unstable angina

- MI

- Ischemic stroke/TIA

- Critical leg ischemia

- Cardiovascular death


---

**Antiplatelet Therapy**

- Aspirin

- Clopidogrel (bolus dose prior to intervention)

- IIb/IIIa Inhibitor

---

**The Role of Platelets in Inflammation and Plaque Stability**

**Inflammatory Modulators Produced by Activated Platelets**

- Platelet-derived growth factor
- Platelet factor 4
- CD 154 (CD40L)
- RANTES
- Thrombospondin
- Transforming growth factor-β
- Nitric oxide

*Regulated on activation, normal T-cell-expressed and secreted.*

Mechanisms of Action of Oral Antiplatelet Therapies

ADP = adenosine diphosphate, TXA₂ = thromboxane A₂, COX = cyclooxygenase.


Pathways to Platelet Aggregation

Collagen
Thrombin
TXA₂
ADP
Phosphodiesterase
GP IIb/IIIa
Activation
COX
Clopidogrel bisulfate
Ticlopidine HCl
Aspirin
Dipyridamole
Cilostazol
cAMP

Mechanisms of Action of Oral Antiplatelet Therapies

2nd: Anticoagulation

- Unfractionated Heparin
- Bivalirudin: Direct thrombin inhibitor

*** ACT > 200

3rd: Access

- Antegrade instead of contralateral
- Tip of Sheath in the popliteal artery (longer sheath)
**Long Sheath placed in popliteal Artery**

4th: DSA Imaging
- To see details of BTK arteries, runoff, esp collaterals, BTA

5th: Road Mapping
- Passage of wire, catheter, balloon “real time” over existing image, true lumen entry
- Minimize Contrast injection

6th: Magnification
- Details of the Lesion
- Occlusion vs. 99% “channel”

7th: using .018 or .014
- Smaller arteries, avoid .035
- Hydrophilic wires for crossing Occlusions
- Floppy tip for stenosis

8th: using Micro-catheter
- Accessing the tibial Arteries
- Pushing through the occlusion
9th: Low Profile (.014) PTA Balloon
Over the Wire, not Rx

10th: Limb Salvage/Ulcer/Plantar Artery

11th: Completion Arteriogram

12th: Longer Inflation time
- Between 2 to 3 min
- If dissection re-inflate with lower pressure
- Avoid Full metal jacket

13th: Maximal Medical Management (M3)
- Smoking cessation
- Lipid management with Statin
- Optimal diabetic management
- Blood pressure, wt. loss, activity, etc

Risk Factors Modification
13th: Listening to Mozart!

"Pull out, Betty! Pull out!...You've hit an artery!"