Our Ability to Treat Coronary CTOs is Changing Treatment Paradigms: Native Vessel vs. Bypass, Is This Applicable in PAD?

Jack Casas, MD FACC
Coronary and Peripheral Intervention
Northeastern Heart Center
Tahlequah, OK, USA
Disclosures

Speaker’s Bureau:
• Spectranetics

Consultant:
• Spectranetics

Stockholder:
• Spectranetics
So who are we treating?
Major Difference in ideology

Coronary CTO
Most companies require training prior to releasing equipment to individual cath labs

Peripheral CTO
Little or no training is required prior to using new devices and frequently, a demonstration is performed either just prior to or during the case by the company representative.
Cons of cardiac and peripheral CTO treatment

• More equipment
• More cath lab resource time
• More contrast
• More radiation
• More expertise
Why even talk about peripheral CTO treatment?

• Vein graft bypass has been around about seven decades.
• Five year patency has been unchanged at 30-50% for the past two decades.
• Clearly we needed something different.
Five year plan after Fem-pop?
Fig 1. Trends in endovascular interventions, major amputation, and lower extremity bypass surgery, 1996-2006. RR, Risk ratio; CI, confidence interval.

Philip P. Goodney, Adam W. Beck, Jan Nagle, H. Gilbert Welch, Robert M. Zwolak

National trends in lower extremity bypass surgery, endovascular interventions, and major amputations

Fig 2. Trends in endovascular interventions (peripheral angioplasty and percutaneous atherectomy), 1996-2006. RR, Risk ratio; CI, confidence interval.

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The Why and How of CTO Interventions
by Emmanouil S. Brilakis, MD, PhD

Cardiology Today's Intervention, January/February 2012

• How Can an Interventionalist Learn to Proficiently Perform CTO Interventions?
• The first step is the interventionalist must be willing to commit the time and energy required. As William Lombardi, MD, one of the fathers of CTO interventions in North America, loves to say, “You either do CTO PCI, or you don’t — there is no such thing as trying.” In other words, CTO interventions are likely to be challenging and demanding, but the key to success is persistence. With increasing experience, the procedures become faster and success rates increase.
Three types of Operators

1. Those who know and know they know
2. Those who don’t know but know they don’t know
3. Those who don’t know but don’t know they don’t know

• Patient has symptomatic ischemia, ulcerations on foot, diminished tissue oxygenation, ABI 0.5, and the question is limb salvage vs. attempting to limit amputation.

Which operator will you be?
Operator 1
Proceed as superhero?
Operator 2
Run and find help?
Operator 3
Sure, why not?
Treatment paradigm to learn from Cardiac CTO

- Operator training
- Appropriate equipment and tools needed prior to performing cases
- Training of staff
Proposed algorithm also requires

- Need to be fiscally responsible
- Need to have a plan
  - Access
  - Which lesions to prioritize
  - Know when enough is enough
- Success of percutaneous treatment for long peripheral CTO over surgical treatment will depend on the development of algorithms to approach as has been done in the coronary system.
This is going to hurt

OBAMACARE

Creates more IRS jobs than doctors. So how do more IRS agents keep you healthier than a doctor?
I had this awful nightmare!
My approach to long peripheral CTO

- Cross lesion
  - I feel lab should have appropriate wires and support catheters
  - At least one re-entry device you are comfortable with
- Debulk
  - Again, have at least one atherectomy device available
- IVUS
  - Size appropriately
- Scoring balloon or optimal pre-dilatation
  - Better delivery of drug or cryotherapy to vessel wall
- DEB or Cryotherapy
- Spot stent if needed. Avoid full metal jacket
Now across, what is next step?
Clear differences from cardiac approach

• Lesions with more plaque burden
• Longer
• Larger vessels as compared to coronary
• Consider IVUS to accurately size vessels
• Need to assess both inflow and outflow

• With cardiac CTO, there are recommendations as to treatment algorithms, in sessions today we are learning of peripheral CTO treatment.
In conclusion, peripheral CTOs remain one of the most challenging lesions for the endovascular specialist. The device armamentarium continues to expand. We have re-entry devices, microdissection catheters, and crossing devices. Numerous debulking devices with excimer laser and other atherectomy devices are available. The use of IVUS I believe improves outcomes but this is yet to be fully evaluated. In addition to devices, peripheral intervention has the obvious advantage over cardiac CTO of multiple access sites. Although long term patency remains an issue, when compared to 5 year patency with surgery of 30-50% which has not significantly changed for 20 years, the trend is for more endovascular intervention vs. surgical. We need to design trials that will determine optimal therapy as was done with coronary CTO. This may include the use of debulking devices, vascular remodeling with scoring balloons, DEB, and cryoplasty alone of in combination with PTA and stents. Although treatment of CTOs remains challenging, it is a skill that can be learned. It requires patience, knowledge of many devices, expertise in the devices one uses, and, with healthcare in 2017, fiscal responsibility for sustaining a solvent program. If your lab loses money, you will lose your lab.
While CTO treatment started in the periphery, cardiac CTO leaders took time to develop training and treatment algorithms to develop a standard of excellence. I believe operator training is key in the improvement of peripheral outcomes of CTO. This will help to develop algorithms for interventionalists as we move forward. The ultimate goal is the happy patient who can walk on their own two legs.
Thank you for your time
And indulgence of the pictures of the grandkids
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