

"Safe Steer". The solution for chronic total occlusions?

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One of the last problems in interventional cardiology is the treatment of total occlusions. The scope of the problem is somewhere between 15-30% depending the definition used.

The rationale to open an occluded artery is to provide adequate perfusion to viable myocardium in order to improve symptoms, functional capacity, prognosis and to reduce the need for subsequent CABG.

The indications for a recanalization procedure are:

- 1] Severe angina or silent ischemia resulted from the occluded vessel.
- 2] Expected improvement of left ventricular function, when hibernating myocardium is there.
- 3] A high risk lesion in the contra lateral vessel giving collaterals to the occluded vessel. Opening the occluded vessel reduce the risk of the procedure in the stenosed vessel.

The success rate of recanalization procedures vary between 50-80%.

Wires to open occluded vessels are:

- ACS Hi-Torque Cross-it XT (Guidant 100-400 XT)
- "Athlete" coronary wire (Asahi Intecc Co)
- "Fast-Dasher" wire (Target Therapeutics)
- Shinobi wire with PTFE coating (Cordis)
- Choice PT Graphics (Boston Scientific Scimed)
- Terumo Cross with hydrophilic coating
- and the Spectronetics laser wire.

In spite all, this wires success is under 80% .

The Safety Steer is a forward-looking optical guide wire system that utilizes near-infrared light and optical coherence reflectometry (OCR) techniques to discern if it is safe to proceed in the current path of the guide wire in the total occlusion or if the guide wire is approaching the normal artery wall (media or adventitia tissue) and has to be redirected to go the right way.

A radio frequency (RF) generator has been added to the system to allow the distal tip of the guide wire to be energized to facilitate crossing the lesion in refractory sections. Some cases with the system will be shown.