Robotics in Vascular “Surgery”: What is Available; What is Coming And How Will It Help
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Disclosures
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Robotics- Widespread in Medicine

The Vascular Highway is Ideal For Robotics
- Navigation has “guard rails”
- Co-registration with imaging modalities
- Current technology is easily adaptable to robotic use

Vascular Space
- Hansen Medical*
- Corindus
- Novel Techniques

Traditional vs. Robotic Intervention
- Manual intervention
  - Manual manipulation
  - Temporary stents
  - Manual adjustment
  - Manual deployment
- Robotic-assisted intervention
  - Robotic manipulation
  - Permanent stents
  - Robotic adjustment
  - Robotic deployment

**PRECISE Clinical Trial**

Prospective, non-randomized study
- Demonstrate safety & efficacy of CorPath 200 System
- 164 patients enrolled at 9 clinical sites
- Primary endpoint results
  - 97.6% clinical procedural success
  - 98.8% device technical success
  - No device related complications
- Secondary endpoint results
  - 95.2% reduction in radiation exposure to primary operator

**Corindus Robotic Technology**

- 1st generation FDA cleared in 2012, GRX in 2016
- Used in clinical practice for simple to complex PCI
- Regulatory approval received in select markets*
- Steering committee established in 2018 and working towards FIH clinical cases

**NEURO**

- CorPath GRX FDA cleared in 2018
- Focused on below-the-knee interventions including CLI as well as renal cases

**NEURO + REMOTE**

- Potential to be first disruptive treatment option in vascular medicine in 40+ years
- Potential disruptor to stroke therapy with remote access capabilities
- First in human remote PCI case completed in Dec 2018

**What is Coming?**

- Better Technology
  - More precise “human” actions
    - Spin
    - Wiggle
    - Dotter
    - Speed control
  - Can drive micro- and support catheters more effectively
- Better Data
  - Registry for PAD
  - FDA approval for neuro
- Remote Capabilities

**Evolution Of Remote Intervention**

- Hardwired 8' from Patient
- Hardwired 30' from Patient
- Fiber 200' from Patient
- WiFi/Fiber 20 Miles from Patient

**What is Coming?**

Remote Technology Development

First-in-Human Telerobotic Case Series – December 2018

*CorPath Systems are not cleared by the FDA for use in neuro interventions

Approximately 130 PVI cases completed
What is Coming?

- Wide geographic area already "wired"
- Currently
  - Clinic visits
  - Acute stroke management
- Health System cooperation
- Integration of image acquisition and therapeutics

Leverage Telehealth

How Does It Help?

- Reduces radiation exposure
- Better ergonomics
- Better control
- Seamless integration from image acquisition to intervention
- Remote interventions