Robotic Assisted Cardiac Surgery

Aqeel A. Sandhu, MD
Assistant Professor
Division of Cardiac Surgery
Not Quite
Pediatric Cardiologist, Cleveland Clinic
1st combined cardiac catheterization with high-speed x-ray motion pictures

Thoracic Surgeon, Cleveland Clinic
1st Saphenous Aortocoronary bypass procedure

Thoracic Surgeon, Cleveland Clinic
Utilized Internal Thoracic Artery (ICA) as arterial bypass conduit - better long-term survival rates

Thoracic Surgeon, Cleveland Clinic
Two internal Thoracic Artery grafts are better than one

New York University Medical Center
1st minimally invasive robotic heart valve surgery

New York-Presbyterian’s Columbia Presbyterian Medical Center
1st robot-assisted CABG in United States
No differences in all-cause mortality

Major adverse cardiac and cerebrovascular events (MACCE) higher in the PCI

Relative risk of recurrent angina was 2.5 times higher in the PCI

Repeat TVR occurs significantly more frequently (2x) after PCI
“The internal mammary graft appears relatively resistant to atherosclerosis. ... With contemporary medical therapy and aggressive secondary prevention, patency rates may be higher.”

Joseph Carrozza Jr., MD and Frank Sellke, MD
JAMA, November 24, 2004; Vol 292, No 20
Advances in Surgical Myocardial Revascularization
MIDCAB

- **Advantages:**
  - Avoidance of CBP
  - Reduction in neurocognitive deficit
  - Reduction blood loss

- **Limitations:**
  - Technically challenging
  - Steep learning curve
  - Intercostal approach painful
  - Distal length of LIMA compromised
  - No reduction in LOS
Benefits of Robotic Assisted Surgical Myocardial Revascuration

- Avoidance of median sternotomy
- Greater conduit length
- Potential to perform multi vessel bypass
- Reduced risk of infection
- Less blood loss and need for blood transfusions
- Shorter hospital stay
- Less pain and scarring
- Faster recovery and return to normal activities
Patient’s Perspective

Study Objective:
- Assess mid-term outcomes and patient’s perception of robotically assisted CABG: LITA-LAD

Methods:
- LITA dissected w/da Vinci® System
- Enrollment - Apr. ’02 - Nov. ’04
- Nuclear stress-testing - 3 m
- Questionnaire: 3-6 m

Results:
- 20/37 pts.-robotically assisted CABG(Hybrid)
- 90% Would select robotic surgery again
- 95% Would recommend robotic surgery to family/friends
Desired Outcomes

Require more than just expertise in Cardiac Surgery

Requires expertise in:
  Medicine
  Cardiology
  Anesthesiology
  Critical Care
  Nursing
  Respiratory Therapy
  Pharmacy
  Nutrition
  Physical Therapy
  Social Services