Vascular Access Safety Training:
The VAST Agenda

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TRI Overseas Training

- Books
- Live courses
- Web sites

Welcome

TRANSRADIAL INTERVENTION (also known as the “transradial approach” and “transradial access”) has taken the interventional community by storm. In France and Japan, 40% of PCI’s (percutaneous coronary interventions) are performed through the radial approach. TRI is also very popular in Canada, Italy, Spain, and the UK.

The TCVS group in Ahmedabad, India has performed over 25,000 transradial interventions; over 98% of their cases are performed through the radial approach.

The benefits of transradial intervention have been clearly documented. Vastly reduced complications, early ambulation, staff and hospital convenience, and patient preference are making the radial approach the approach of choice worldwide.

Watch for the transradial approach to be used in increasingly sophisticated coronary and peripheral interventions.
Systematic TRI Training in the USA

Essentials of Transradial Angiography and Intervention
Duke University Medical Center
Durham, NC
July 15-16, 2010

SCAI Radial Summit
Boston, MA | November 5, 2010

SCAI TRIP
Transradial Interventional Program – Philadelphia
January 15, 2011 – Hyatt at The Bellevue

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Right Radial Route: 2-6 points of resistance...
Task Force 3: Training in Diagnostic and Interventional Cardiac Catheterization

Endorsed by the Society for Cardiovascular Angiography and Interventions

Alice K. Jacobs, MD, FACC, Chair
Joseph D. Babb, MD, FACC (Society for Cardiovascular Angiography and Interventions Representative), John W. Hirshfeld, Jr, MD, FACC, David R. Holmes, Jr, MD, FACC

Background

Since the second edition of Task Force 3 of the American College of Cardiology (ACC) Core Cardiology Training Symposium (COCATS) guidelines was published (1), both the cognitive knowledge and technical skill required of the invasive and interventional cardiologist have continued to grow. Concomitantly, the role of the cardiac catheterization laboratory in trainee education and as a clinical care facility continues to evolve. The cardiac catheterization laboratory serves both as a diagnostic and therapeutic facility. It has an important role in the initial evaluation of patients with acute coronary syndromes and other acute cardiovascular events. In addition, it is an important repository of technical and cognitive skills required for interventional cardiology with application to a wide range of cardiovascular conditions.

Urgent catheterization and percutaneous revascularization are now considered to be the standard of care for patients with unstable coronary ischemic syndromes, ST-elevation myocardial infarction, and cardiogenic shock. Furthermore, new adjunctive pharmacologic regimens and interventional devices have emerged. In addition, many noncoronary therapeutic procedures including percutaneous closure of atrial septal defects and patent foramen ovale, valve repair or replacement, and septal artery ablation are currently in various stages of investigation and are likely to significantly expand the scope of the field of interventional cardiology. This evolution has increased the cognitive and technical knowledge base required...

Jacobs AK et al. JACC 2008; 51: 355-61
Complete SCAI/ACC/AHA/ESC TRI Training Guidelines
Program accreditation

- ACGME accredited program
  - Dx cath:
    - Level 1 (noninvasive)
    - Level 2 (invasive diagnostic only)
  - Interventional:
    - Level 3 (interventional)
Faculty structure

- **Full time faculty:** >150 caths/year
  - Program director:
    - 5 years practice
    - >1,000 PCIs
    - “recognized expert in catheterization”

- **Key faculty:** “The program faculty should include individuals with expertise in the performance of myocardial biopsies, trans-septal catheterization, and the interpretation and performance of intracoronary ultrasound and intracoronary physiologic assessment (Doppler coronary flow and intracoronary pressure measurement), although each member need not have expertise in every area…. Ideally… the program should include faculty who possess skills in advanced interventional cardiovascular techniques such as patent foramen ovale and atrial septal defect closure, septal ablation for hypertrophic obstructive cardiomyopathy, and balloon valvuloplasty…(and)…faculty with expertise in peripheral vascular disease.”

- **Associated faculty**

Jacobs AK et al. JACC 2008; 51: 355-61
Facilities & Environment

- Equipped per ACC/SCAI consensus cath lab standards*
  - X-ray imaging
  - Hemodynamic/physiologic monitoring
  - Ancillary support

- Activity level & patient mix

*Bashore T et al. J Am Coll Cardiol 2001;37: 2170-7
Duration of Training & Case Volume

- **Level 1:**
  - minimum 4 months
  - 100 cases

- **Level 2:**
  - min 8 months over 3 years
  - 300 Dx cases

- **Level 3:**
  - additional 4th year
  - 250 PCIs
Participation in Procedures

- Pre-procedure evaluation of pt
- Performance of procedure per skill level & under supervision
- Analysis of procedural data
- Post-procedural management

ADD Allen’s Test HERE?
ADD Wrist band and peace of mind HERE?
Training Program Curriculum: Cognitive Knowledge (Levels 1,2,3)

- Anatomy & principles of imaging
- Hemodynamics & principles of recording
- Indication(s) for cath
- Indications for interventions
- Optimal adjunctive therapies
- Complications & management

“19. Understand the indications for and complications of vascular closure devices”
Training Program Curriculum:
Level 1, 2 & 3 Technical Skills

Vascular Access:

- Level 1: Perform percutaneous vascular access from the femoral artery and vein and subclavian or internal jugular vein”

- Level 2 & 3: Perform vascular access from the femoral, radial, or brachial route
Advancing Femoral Access Safety:  
A Medical Device Imperative

Mitral Valve

Aortic Valve

Ventricular Assist

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Vascular Access Safety Training (VAST): The Real Issues

- Not TRI vs. FA access
- Patient orientation: access safety
- Professional orientation: competence
- Technology orientation: optimal device & drug innovation
Vascular Access Safety Training: A VAST Addition to Training Guidelines

- Arteriotomy
  - Access technique
  - Access technology
  - Access imaging

- Sheaths & sheathless:
  - Technique
  - Technology

- Site closure:
  - Technique
  - Technology

- Adjunctive meds:
  - Bleeding
  - Patency

- BP management

- Arteriotomy site follow up

CABG no longer the comparator!
Vascular Access Safety Training: A VAST Addition to Training Guidelines

- **Safety of the patient:**
  - Contrast
  - Radiation
  - Procedure duration
  - Procedure success

- **Safety of the operator:**
  - Radiation
  - Quiet peaceful sleep at night
The VAST Matrix: Femoral, Brachial & Radial

- **Access tools**
  - Needles, wires, drug adjuncts
  - Imaging
  - Staff level

- **Sheath/sheathless techniques**
  - Devices, device surfaces
  - Drug adjuncts

- **Sheath removal**
  - Closure devices
  - Hemostasis devices
  - Imaging
  - Drug adjuncts
  - Staff level

- **Follow up**
  - Clinical
  - Imaging
  - Staff level
Conclusions

- **Guidelines for TRI**
  - Conjoined with cath training guidelines

- **Special emphases**
  - Level of first exposure to TRI (Level 1 vs 2)
  - Preserving TRI & FA competence
  - Pt selection & prioritization of access technique (“radial first”)
  - Role of simulator training

- **The VAST Agenda**
  - Systematic approach to all aspects of access safety
  - Incorporation in training guidelines
  - Incorporation into practicing centers
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