STANDARDIZED PROCEDURE
RADIAL ARTERY HARVEST (Adults)

I. Definition
Surgical harvest of the radial artery for use in coronary artery bypass grafting. Multiple conduits may be necessary for CABG and the radial artery provides an excellent, long lasting graft. It is easily harvested and is used in conjunction with the mammary artery and saphenous vein. It is useful for patients who are young because of its long term potency.

II. Background Information
A. Setting:
The setting (inpatient vs outpatient) and population (adults vs pediatrics) for the Advanced Health Practitioner (AHP) is determined by the approval of the privileges requested on the AHP Privilege Request Form. If the procedure is being done on a Pediatric patient, make sure Child Life is involved and use age appropriate language and age appropriate developmental needs with care of children, as appropriate to the situation.

B. Supervision: The necessity of this protocol will be determined by the Advanced Health Practitioner in collaboration with the supervising physician or his/her designee. Designee is defined as another attending physician who works directly with the supervising physician and is authorized to supervise the Advanced Health Practitioner.

Direct supervision will not be necessary once competency is determined, as provided for in the protocol. The Advanced Health Practitioner will notify the physician immediately upon being involved in any emergency or resuscitative events or under the following circumstances:

1. Patient decompensation or intolerance to the procedure
2. Bleeding that is not resolved
3. Outcomes other than expected

C. Indications:
Useful in young patients requiring CABG and in patients with limited available conduits secondary to severe PVD, such as amputees, those patients who are s/p fem-pop bypass surgery and those with severe varicosities.

D. Precautions/Contraindications
Not indicated for patients over 64 years of age or for patients who have compromised arterial flow of the hands. The Median Nerve must be identified while harvesting so that there will be no injury to that nerve which could result in decreased motor function of the hand.

III. Materials
Equipment is available in the Cardiothoracic OR's.
IV. Procedure: Radial Artery Harvest

A. Pre-treatment evaluation
   Allen's test of hands, bilaterally.

B. Set up (if applicable)
   Arm is supported on an armboard with the volar surface facing upward.

C. Patient Preparation
   Circumferential povidone iodine or "dura-prep" painting from the axilla to the hand, including the fingers. Perform a time out prior to the procedure.

D. Procedure
   1. An incision is made from the radial aspect of the wrist, just over the pulse, to the antecubital aspect, just below the level of the elbow.
   2. The artery is identified distally and sharply dissected until it disappears under the brachioradialis muscle.
   3. The muscles are divided with caution, as the Median nerve is also under these muscles, and care is taken not to transect the smaller sensory nerves that lie above the brachioradialis. The Median nerve may or may not be visible, but should be identified prior to continued dissection.
   4. The radial artery is again followed proximally and dissected with scissors and cauterized. Surgical clips are placed on all branches.
   5. Once the artery is completely freed from the surrounding tissue the distal and proximal ends are clipped and tied, then divided.
   6. A cannula is placed into the lumen of the radial artery, proximally and it is flushed with a diluted solution of Nitroprusside to dilate the artery and prevent spasm.
   7. The incision is closed in two layers, with care taken to close the deep fascial layer, proximally, with interrupted sutures. Again, the Median nerve should be identified while closing.
   8. An island dressing is placed and the arm is wrapped from the wrist to the elbow with an elastic bandage for 24 hours.

E. Post-procedure
   1. Dress and wrap the arm from the wrist to the antecubital space with an elastic bandage for 24 hours.
   2. Start the patient on Diltiazem to prevent spasm of the vessel immediately after surgery.
   3. Assess motor function of the hand.
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F. Follow-up treatment
   1. Continue patient on a 3 month course of diltiazem.
   2. Assess wound and motor function of the hand in follow-up clinic.

G. Termination of treatment
   The final follow-up visit which is typically 2 weeks post-operatively, provided there are no wound complications.

V. Documentation
   A. Documentation is in the electronic medical record
      1. Documentation of the pretreatment evaluation and any abnormal physical findings.
      2. This is part of the operative note by the Attending Surgeon. It should include the time out, indication for the procedure, procedure, EBL, the outcome, how the patient tolerated the procedure, medications (drug, dose, route, & time) given, complications, and the plan in the note, as well as any teaching and discharge instructions.

   B. All abnormal findings are reviewed with supervising physician.

VI. Competency Assessment
   A. Initial Competence
      1. The Advanced Health Practitioner will be instructed on the efficacy and the indications of this therapy and demonstrate understanding of such.
      2. The Advanced Health Practitioner will demonstrate knowledge of the following:
         a. Medical indication and contraindications of radial artery harvest
         b. Risks and benefits of the procedure
         c. Related anatomy and physiology
         d. Consent process (if applicable)
         e. Steps in performing the procedure
         f. Documentation of the procedure
         g. Ability to interpret results and implications in management.
      3. Read several articles describing the procedure and the anatomy of the forearm. Then observe attending surgeon or designee for a minimum of three procedures. Assist attending surgeon or senior resident for a minimum of 12 procedures. Perform procedure with attending surgeon direct supervision, guiding PA for three procedures.
      4. Supervising physician will document Advanced Health Practitioner’s competency prior to performing procedure without direct supervision.
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5. The Advanced Health Practitioner will ensure the completion of competency sign-off documents and provide a copy for filing in their personnel file and a copy to the medical staff office for their credentialing file.

B. Continued proficiency

1. The Advanced Health Practitioner will demonstrate competence by successful completion of the initial competency.

2. Each candidate will be initially proctored and signed off by an attending physician. Advanced Health Practitioner must perform this procedure at least three times per year. In cases where this minimum is not met, the attending, must again sign off the procedure for the Advanced Health Practitioner. The Advanced Health Practitioner will be signed off after demonstrating 100% accuracy in completing the procedure.

3. Demonstration of continued proficiency shall be monitored through the annual evaluation.

4. A clinical practice outcomes log is to be submitted with each renewal of credentials. It will include the number of procedures performed per year and any adverse outcomes. If an adverse outcome occurred, a copy of the procedure note will be submitted.

VII. RESPONSIBILITY
Questions about this procedure should be directed to the Chief Nursing and Patient Care Services Officer at 353-4380.

VIII. HISTORY OF POLICY
Revised Sept 2012 by Subcommittee of the Committee for Interdisciplinary Practice
Reviewed Sept 2012 by the Committee on Interdisciplinary Practice
Prior revision October 2008
Approved Sept 2012 by the Executive Medical Board and the Governance Advisory Council.

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