

Radial Artery Free Graft (for CABG): Patient Care

Site Applicability

St. Paul's Hospital, Cardiac Intensive Care Unit (CSICU)

Practice Level

Specialized:

- *Registered Nurses with critical care education working in CSICU*

Need to Know

Benefits of using radial artery grafts include lower rates of graft occlusion at one year, ease of harvesting, lower propensity for wound infections and possibly reduced pain compared to saphenous vein grafts, which promotes early ambulation and shorter hospital stays.

Major post-operative complications are ischemia and neurological complications. Use of noninvasive or automatic blood pressure devices, phlebotomy, and use of intravenous catheters on the extremity used for harvesting are contraindicated

Physicians assess adequacy of blood flow from the ulnar circulation (ulnar artery is the primary supplier of blood flow to the hand) including:

- Modified Allen's Test to ensure satisfactory ulnar arterial flow and an intact palmar arch.
- Doppler ultrasound studies to detect any abnormality of vascular distribution of the upper limb

Protocol

Assessment

On admission to CSICU

In addition to routine post-cardiac surgery assessments ([B-00-13-10025](#)):

- Monitor donor extremity for ulnar pulse, temperature, colour, capillary filling time and sensation and movement (as appropriate as patient regains consciousness)
- Monitor for ST segment elevation and T wave inversion in relevant leads (could indicate if vasospasm occurs) and record (refer to operative record to determine location of radial artery graft). Ensure 12 lead ECG is obtained and reviewed by physician
- Monitor O₂ saturation in donor extremity by placing pulse oximeter on thumb of donor extremity. Compare to measurement in other hand
- Assess harvest site for bleeding, tissue perfusion, infection and hematoma
- Ensure tensor bandage remains in place for 1st post-op night, and does not impede circulation

This material has been prepared solely for use at Providence Health Care (PHC). PHC accepts no responsibility for use of this material by any person or organization not associated with PHC. A printed copy of this document may not reflect the current electronic version.

Ongoing Assessment

In addition to routine post-cardiac surgery assessments ([B-00-13-10025](#)):

- Monitor donor extremity for neurovascular dysfunction by: ulnar pulse, temperature, colour, capillary filling time, sensation and movement and pain Q1H x 4 then Q4H while in CSICU and with vital signs on 5B
- Monitor ST segments for elevation and T wave inversion in relevant lead that (could indicate if vasospasm occurs) Q1H for duration of stay in CSICU
- Monitor oxygen saturation in the donor extremity Q1H while in CSICU by placing pulse oximeter on thumb of donor extremity. Compare measurement in other hand
- Assess harvest site for bleeding, tissue perfusion, infection, hematoma (and neurovascular dysfunction related to compartment syndrome)

Interventions**Initial**

In addition to routine post-cardiac surgery interventions ([B-00-13-10025](#)):

- Mark ulnar with permanent marker and monitor as per protocol. Notify surgeon (physician) if any abnormalities
- Place pulse oximeter on the thumb of the affected limb
- Do not measure blood pressure on affected limb (if possible)
- Do not obtain blood samples or place intravenous catheters in affected limb if possible)
- Ensure tensor bandage remains in place for 1st post-op night, and not impeding circulation
- Measure drainage from Hemovac drain (if in situ) Q shift and PRN assessment
- Maintain arm position at level of heart (elevate on pillow)
- Initiate any additional medications ordered by physician to prevent vasospasm of radial artery graft

Ongoing:

In addition to routine post-cardiac surgery interventions ([B-00-13-10025](#)):

- Do not measure blood pressure on affected limb (if possible)
- Do not obtain blood samples or place intravenous catheters in affected limb (if possible)
- Maintain arm position at level of heart (elevate on pillow)
- Measure drainage from Hemovac drain (if in situ) Q shift and PRN, remove drain post op day one as ordered by physician
- Do not remove Steri-Strips without physician's order (they will fall off on their own)
- Encourage patient to exercise hand and fingers minimum every 2 hours (by wiggling fingers and opening and closing hand

Documentation

Record initial and ongoing assessments and interventions using any or all of the following:

This material has been prepared solely for use at Providence Health Care (PHC). PHC accepts no responsibility for use of this material by any person or organization not associated with PHC. A printed copy of this document may not reflect the current electronic version.

CSICU:

- Cerner
 1. Interactive View and I & O>>>Incision/Wound/Skin/Pin Site>>> create dynamic group for radial dressing
 2. Interactive View and I&O>>>Adult Critical Care Lines- Devices>>>Surgical Drains/Tubes>>> create dynamic group for Davol (if applicable)
 3. Interactive and I & O >>>Adult Critical Care Systems Assessment >>> Pulses>>> create dynamic group for ulnar pulse

Ward:

- Cerner
 1. Interactive View and I & O>>>Incision/Wound/Skin/Pin Site>> continue to assess and document until dressing removed

Patient and Family Education**Post Procedure and Discharge Instructions:**

- Advise patient that they May experience numbness, tingling, prickling, burning or cutting pain in thumb, third, fourth, and fifth digits of hand or in area of skin incision and dorsum of donor hand post surgery. This usually resolves within 2 to 60 days
- Advise patient that they no longer have radial pulse in donor extremity. This has implications for future encounters with health care providers.

Related Documents

1. [B-00-13-10011](#) – Cardiac Monitoring Protocol
2. [B-00-12-10018](#) – ST Segment Monitoring: Initiating
3. [B-00-13-10017](#) – Physical Assessment (Critical Care Areas)
4. [B-00-13-10157](#) – Central Venous Catheter (CVC): Care and Maintenance
5. [B-00-13-10034](#) – Vasoactive Agents (Infusion) on Cardiology Ward (5A): Administration
6. [B-00-13-10025](#) - Cardiac Surgery: Post-operative Care

References

1. Adnan G, Yandrapalli S. Radial Artery Coronary Bypass. (Updated 2022 Oct 3). In: StatPearls(Internet). Treasure Island (FL): StatPearls Publishing;2023 Retrieved March 2023

Groups/Persons Consulted:

CSICU Staff

Cardiothoracic Surgeons

Developed/Revised By:

Nurse Educator CSICU

First Released Date:	AUG-2002
Posted Date:	07-NOV-2023
Last Revised:	07-NOV-2023
Last Reviewed:	07-NOV-2023
Approved By: <i>(committee or position)</i>	PHC
	Professional Practice Standards Committee
Owners: <i>(optional)</i>	PHC
	Cardiac Surgery