

	<p>Policies & Procedures</p> <p>Title: INTRA-AORTIC BALLOON (IAB) CATHETER: ASSISTING WITH INSERTION, CARE OF, AND ASSISTING WITH REMOVAL</p> <p>RNSP: ADVANCED RN INTERVENTION</p> <p>I.D NUMBER: 1173</p>
<p>Authorization: [] Former SKtnHr Nursing Practice Committee</p>	<p>Source: Nursing Date Reaffirmed: March, 2018 (correction to info) Date Revised: January 24, 2018 Date Effective: March 1994 Scope : Former SktnHR Acute Care: RUH ICU/CCU</p>

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DEFINITIONS

Intra-aortic balloon catheter (IAB) – a cylindrical polyethylene catheter with a balloon that sits in the aorta and is attached to the Intra-aortic balloon pump (IABP)

Intra-aortic Balloon Pump – a mechanical device attached to the IAB that increases myocardial oxygen profusion while at the same time increases cardiac output. The increase cardiac output increases coronary blood flow and therefore myocardial oxygen delivery.

ROLES:

Registered Nurses (RN) - RNs identified by their manager in targeted practice settings, will be certified in the RN Speciality Practice, Advanced RN Intervention of Assisting with insertion, care of patient with, and assisting with removal of IAB.

1. PURPOSE

- 1.1 To minimize the risks of infection and other complications associated with insertion of the IAB catheter.
- 1.2 To ensure the safe care of the patient undergoing intra-aortic balloon pump therapy.
- 1.3 To minimize the risk of complications of IAB catheter removal.

2. POLICY

- 2.1 The IAB catheter will be inserted by a qualified physician (CV surgeon or cardiologist) in either OR, Cardiac Catheterization Laboratory, CCU or ICU at Royal University Hospital.
 - 2.1.1 The clinical perfusionist on call will be in attendance.
 - 2.1.2 All staff shall perform hand hygiene prior to donning Personal Protective Equipment (PPE) and after removing PPE
 - 2.1.3 Insertion is done under aseptic technique with all directly involved wearing a cap, gown, mask with attached visor and sterile gloves.
 - 2.1.4 Insertion should be guided by fluoroscopy. If fluoroscopy is not used, placement must be confirmed by X-ray immediately after insertion, once patient transferred to RUH ICU or RUH CCU.
 - 2.1.5 All personnel performing the procedure should wear lead apron/collar and radiation dosimeter badge if inserted under fluoroscopy.
 - 2.1.6 IAB catheter placement is confirmed by a portable CXR post insertion.
- 2.2 To ensure safe care of the patient undergoing intra-Aortic Balloon Pump Therapy.
 - 2.2.1 The patient with an IABP will be cared for in RUH in the ICU or CCU by certified in RNSP Care of the Patient with an IABP.
 - 2.2.1.1 The RNs certified in this RNSP will have first completed the following learning module prior to caring for patients with IAB.
 - Attending an education session on IAB
 - Completion of learning package and quiz, and returning to CNE
 - Complete a skills checklist with certified RN during simulation or during first care of patient with IABC/IABP to ensure safety checks are followed appropriately.
 - 2.2.2 The physician will order the IABP ratio and any changes.
 - 2.2.3 The clinical perfusionist is responsible for initial IABP set-up and assisting with ongoing troubleshooting.
 - 2.2.4 The nurse is responsible for monitoring the patient.
 - 2.2.5 The nurse is responsible for monitoring the IABP console for correct timing and troubleshooting on an ongoing basis (refer to learning package for RNSP).
- 2.3 The IAB catheter will be removed by a qualified physician when a physician order is written.

3. PROCEDURE

3.1 Assisting with Insertion:

- 3.1.1 The Physician will:

- 3.1.1.1 Notify clinical perfusionist on call that an IAB catheter is to be inserted.
- 3.1.1.2 Obtain an informed consent prior to the insertion.
- 3.1.1.3 Ensure patent central and/or peripheral intravenous access obtained prior to insertion.
- 3.1.1.4 Ensure all equipment is available prior to insertion.
 - IABP, helium gas supply
 - ECG and arterial pressure monitoring supplies
 - IAB catheter and insertion kit
 - Antiseptic solution
 - PPE – cap, gloves, mask with attached visor
 - Sterile gloves
 - Sterile dressing supplies
 - 0-silk suture and scalpel or suture-less securement device
 - Pressure transducer system with flush solution (normal saline or add heparin if prescribed or according to institutional standards)
 - Analgesics and sedatives as prescribed
 - Lead apron/collar and radiation dosimeter badge (if procedure is performed with fluoroscopy)
- 3.1.1.5 Insert the IAB catheter via the femoral artery and ensure correct placement.
- 3.1.1.6 Order the pumping ratio of IABP.
- 3.1.2 The clinical perfusionist will:
 - 3.1.2.1 Be responsible for the initial setup of the IABP and timing.
 - 3.1.2.2 Pressure tubing will be flushed with Heparin 2000 units/1000mL solution.
 - 3.1.2.3 Upon transfer to critical care area, provide report to nurse including:
 - Alarm settings
 - Trigger
 - Timing
 - Insertion site condition
 - Catheter size
 - Distal pulses
 - Absence or presence of sheath
 - Other relevant clinical factors
- 3.1.3 The RN will:
 - 3.1.3.1 Assist the patient to a supine position in preparation of the insertion of the IAB catheter.

- 3.1.3.2 Obtain baseline vital signs and lab work as ordered.
- 3.1.3.3 Document initial insertion site condition, distal circulation including color, temperature and pulses.
 - Assess and document q 15 min x 1hour then q 1hour as per Care of Patient (see 3.2) with IAB Policy
- 3.1.3.4 Assess and document patient's color, temperature, movement and sensation in Left arms q 15 min x 1hour then q 1hour as per Care of Patients with IAB Policy.
- 3.1.3.5 Document date, time, site of insertion and physician inserting the catheter and patient tolerance of the procedure.

3.2 Care of the Patient with Intra-Aortic Balloon Pump Therapy

3.2.1 The RN will:

- 3.2.1.1 Complete and document a physical assessment that includes neurological, cardiovascular and hemodynamic assessments as follows:
 - Level of consciousness every 2 hour while awake, every 4 while asleep, and PRN
 - Vital signs and pulmonary artery pressures (if available) q 1 hour and PRN
 - Continuous cardiac monitoring
 - Arterial timing in 1:2 assist ratio to assess timing every q 1 hour and PRN
- 3.2.1.2 Assessment of perfusion to extremities q 1 hour and PRN (pulses, color, temperature and sensation).
- 3.2.1.3 Monitoring of urine output q 1 hour.
- 3.2.1.4 Assessment of heart and lung sounds q 4 hours and PRN.
- 3.2.1.5 Assess and manage the patient's pain that may be due to angina, immobility, or IAB placement.
- 3.2.1.6 Keep head of bed at approximately 30 degrees, unless it interferes with operations of the balloon. If interferes with IAB keep patient in Reverse Trendelenburg.
- 3.2.1.7 Ensure patient's cannulated leg remains straight to prevent kinking and/or migration of IAB catheter.
- 3.2.1.8 Assess IAB insertion site q 1 hour and PRN for evidence of hematoma, bleeding, infection and presence of blood in central lumen or the gas line of IAB catheter.
 - Uses a transparent dressing to allow for a clear visualization of site.
 - Change transparent dressing q 7 days and PRN
- 3.2.1.9 Do not draw blood from the IAB catheter

- 3.2.1.9.1 Log roll patient every 2 hours and prop pillows to support the patient and maintain alignment. Assess skin integrity and document risk for pressure ulcers by utilizing the Braden scale every 12 hours.
 - Implement strategies for pressure ulcer prevention (i.e. prevalon boots or heel dressings and sacral dressing)
- 3.2.1.9.2 Perform passive and active range of motion exercises every 2 hours to extremities that can be mobilized.
- 3.2.1.9.3 Maintain prophylactic anticoagulation if ordered by the physician to prevent thrombi and emboli development. Monitor coagulation studies.
- 3.2.1.9.4 Monitor the patient for evidence of systemic bleeding or coagulation disorders (decrease in hemoglobin and platelets).
- 3.2.1.9.5 Re-level and re-zero IABP and check alarm settings q shift and prn.
- 3.2.1.9.6 Level transducer to phlebostatic axis q shift and with every patient repositioning.
- 3.2.1.9.7 Change pressure setup q 96 hours with Heparin 2000 units/1000mL solution. (Done by Perfusion).
- 3.2.1.9.8 Chest x-ray daily and PRN (for position, and for indication of decreased/absent urine output, or diminished pulses in the left arm)
- 3.2.1.9.9 Monitor for signs of inappropriate catheter placement or catheter migration (diminished pulses in left arm, change in level of consciousness or reduction of urinary output, or check IAB catheter).
- 3.2.1.9.10 Monitor for balloon rupture and vascular complications.
- 3.2.1.9.11 Monitor IABP console for
 - Operating Mode
 - Acceptable trigger source
 - Helium tank level
 - Alarm settings
 - Using A/C power (not battery)
 - Connections intact (follow from console to patient)
 - Auto balloon refill q2h
 - Any alarms or alerts on an ongoing basis
- 3.2.1.9.12 Document
 - Patient tolerance of IABP therapy
 - Vital signs q1h
 - Hemodynamic readings on IABP flow sheet q1h (in black or blue)
 - Augmentation marked as * in Red on Critical Care Flow sheets
 - Insertion site and distal circulation checks q1h
 - Record an IAB wave tracing q shift and PRN (attach to flowsheet)

3.2.1.9.13 Notify the physician if:

- Accepted hemodynamic parameters deviates
- Unexpected low urine output occurs
- Signs of limb ischemia occur
- Diminished pulses noted in legs or left arm
- Blood is noted in IAB catheter tubing
- Alterations in mental status occurs

3.3 Assisting with Removal of IAB Catheter

3.3.1 The RN will:

3.3.1.1 Ensure patient has been weaned from IABP as ordered by physician

The physician has weaned the patient from the IAB i.e. change the assisted ratio to 1:2 and monitored patients response for 1-4 hour, (as per physician's order). If tolerated, change to 1:1 until IAB is removed.

3.3.1.2 Ensure that coagulation values are within acceptable range (i.e. Partial Thromboplastin Time(PTT), Prothrombin Time (INR), and Activated Clotting Time(ACT). As per Physician order, discontinue IV anticoagulation 4-6 hours before IAB catheter is removed or reverse heparin with protamine (as ordered). ACT less than 170 secs

3.3.1.3 Consider sedation / analgesia for patient prior to IAB catheter removal.

3.3.1.4 Ensure all equipment and supplies are available at the time of removal

- Linen saving pads
- PPE – gloves, mask with attached visor
- Sterile gloves
- Sterile gauze
- Suture removal kit
- Elastoplast for pressure dressing
- Ultrasound Doppler – if requested
- IV fluid, primary IV tubing and Atropine for hemodynamic instability

3.3.1.5 When directed, place IABP on standby or off and disconnect the IAB from the console.

3.3.2 The Physician will:

- Remove dressing and cleanse area
- Remove sutures from insertion and attachment sites
- Direct IABP to be placed on standby
- Remove IAB catheter. 1-2 seconds of bleeding from the insertion site is allowed to expel any clots that may have formed and to assess vessel patency
- Apply pressure above the insertion site to obtain hemostasis
- Continue to hold pressure for 10-15 minutes at which time a nurse may take over so compression in total is a minimum of 25 minutes or until hemostasis has occurred.

3.3.1.6 Once IAB catheter has been successfully removed and manual pressure being held, the RN or Physician will:

- Monitor the distal limb for signs of compromised circulation
- Monitor distal pulses q5min during manual pressure

3.3.1.7 Once hemostasis has been achieved, the RN will:

- Apply a sterile pressure dressing over insertion site for 4 hours or as prescribed
- Monitor the site for bleeding, swelling or hematoma formation q15 minutes x 4, q 30 min x2.
- Monitor distal pulses and circulation q1h x4 hrs. q 2 hours x 2 hrs. and then as per unit routine (q4hr and PRN).
- Maintain immobility of the decannulated extremity and maintain bed rest with head of the bed no greater than 30 degrees for 6 hours
- Notify Perfusion of the pump removal

3.3.3 Document in Nursing Flowsheet:

- Date, time and person removing IAB catheter
- Condition of site prior to removal and following removal
- Patient's tolerance, and medications given

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