SARASOTA MEMORIAL HOSPITAL

NURSING PROCEDURE

TITLE: CARE OF INTRA AORTIC BALLOON PUMPS (IABPs)
(crc13-NURSING)
(crc.013-RESPIRATORY)

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ISSUED FOR:
Nursing, Special Care Areas
Respiratory Care Services
Perioperative Services

RESPONSIBILITY:
RN, OR, Cath Lab
Respiratory Therapists
Perfusionists

PURPOSE: The IABP Intra Aortic Balloon Pump is a counterpulsation device used to: 1) increase coronary artery perfusion; 2) decrease left ventricular afterload.

EQUIPMENT: 1. INSERTION:
   a. IABP Intra aortic balloon pump with transducer and EKG cables
   b. Balloon catheter with complete insertion kit accessories
   c. Central line insertion cart (full barrier required)
   d. CHG impregnated patch
   e. 500ml Normal Saline, unless otherwise ordered by the physician

   NOTE: Due to the temporary presence of wires and other invasive devices in the heart and vascular system, the short-term use of Heparin in the bags in the procedural/surgical departments will be practiced at the discretion of the physician.
   f. Pressure bag
   g. 21 gauge needle
   h. Single line monitoring kit which includes disposable transducer (leave stopcock in line)

2. MANAGEMENT, MONITORING AND DOCUMENTATION, AND TROUBLESHOOTING:
   a. Use the EMR for documentation. If system is down, use downtime trifold documentation form for critical care.
   b. 6 ml syringe for establishing patency of monitoring line when waveform dampened
   c. 60cc luer-lock syringe and stopcock for IABP system failure

3. DISCONTINUATION:
   a. Clean gloves (doubled) or sterile gloves
   b. Suture set or disposable blade
   c. 4x4 gauze squares
d. 60 ml luer-lock syringe
e. Stopcock
f. Elastoplast tape
h. Personal protective equipment

PROCEDURE:

1. INSERTION:
   a. Immediately notify all necessary personnel - RC Team Leader, RT, RN
   b. Positive patient identification is required prior to performing the procedure. Refer to Policy (01.PAT.09) Patient Identification: Inpatient/Outpatient.
   c. Explain procedure to patient. Obtain and verify a written consent. If unable to obtain consent due to patient’s condition, document in EMR.
   d. Obtain and establish equipment. Respiratory Care, Cath Lab, or Nursing personnel to set up monitoring lines. Assemble infusion set described above. The drip chamber is to be completely fluid filled. Appropriately label and date flush solution and infusion set.
   e. Manufacturer’s guidelines and recommendations listed in the “Abbreviated Operator’s Instructions for Intra-Aortic Balloon Pump” will be followed for the set-up of the IABP and its subsequent use and operation.
   f. Perform “timeout” per hospital policy (01.PAT.18) to re-verify correct patient, procedure and site and document it.
   g. Perform hand hygiene.
   h. Following insertion and stabilization of the balloon catheter, document the procedure in the patient’s medical record.

2. MANAGEMENT:
   a. Optimal timing will be maintained at all times.
   b. Hourly readings will be obtained and documented.
   c. Fast-flush balloon for 30 seconds every 2 hours with IABP in stand-by mode.
   e. Assess radial and dorsalis pedis and posterior tibial pulses hourly. Document the actual pulses obtained by palpation whenever possible. Weak pulses must be confirmed by doppler at least every two hours.
   f. Alarms will be on at all times.
g. The ratio of augmentation (e.g., 1:1, 1:2, 1:3) will be ordered by the appropriate physician.

i. IABP tubing and flush bag will be changed every 96 hours by Respiratory Care personnel and labeled with date, time, and initialed.

j. Transparent dressings may remain in place for up to seven (7) days unless wet, soiled, or non-occlusive in which case they should be changed ASAP. Any dressings containing gauze will be changed every 2 days along with a CHG impregnated patch. The CHG impregnated patch should be placed around the catheter printed side up.

k. Blood sampling from IABP monitoring lines will NOT be done without a physician order unless an emergency exists.

l. IABP console will be plugged in unless patient is being transported.

m. When transporting IABP patient, Respiratory Care, Cath Lab, Perfusionists, or Nursing personnel will accompany balloon pump.

3. TROUBLESHOOTING:
   GENERAL
   a. Ensure that there is 300mm Hg on pressure bag.
   b. Check all connections for patency.
   c. Zero and calibrate system at phlebostatic axis. With IABP in stand-by mode, fast flush. The RN/RT caring for the patient shall collaborate in an effort to achieve and maintain optimum augmentation by checking the timing trigger selections.

   NOTE: “HELP” screens are available to assist in troubleshooting all alarms.

4. TRIGGER ALARM:
   a. EKG is the preferred trigger. The EKG must be of adequate amplitude size. CS series IABP’s will automatically select the best trigger in Automode—Leave IABP in Automode (unless ordered otherwise)
   b. Pressure trigger may be utilized for patient with irregular rhythm or if the EKG trigger doesn’t provide optimal augmentation. There must be a 15mm Hg upstroke in the patient’s pulse pressure in order to be used.
   c. Internal trigger is utilized during cardio-pulmonary by-pass. During Code Blue situations, the IABP should be able to trigger from EKG or pressure
during CPR. If, despite adequate CPR, the IABP is not pumping, the internal trigger may be used.

5. GAS LOSS
   a. Check helium line connections.
   b. Check helium tank. If < 500 psi, have Respiratory Care replace tank. Refill IAB.
   c. Check for blood in helium line. It may appear as a bright red blood or coffee grounds. **If IABP leak suspected, turn off the IABP and notify physician immediately.** It is recommended that the IABP be turned off. Prepare for IABP removal or replacement.

6. TROUBLESHOOTING:
   DEFLATE EARLIER/CHECK IAB CATHETER
   a. Confirm proper timing.
   b. Check for patency in catheter and monitoring system.
   c. Set augmentation at maximum.

7. SYSTEM FAILURE/PNEUMATIC DRIVE
   a. Turn off IABP for 15 seconds and then turn back on and restart IAB pumping. If alarm continues, call RT immediately for replacement IABP. Manually inflate IAB once every 3-5 minutes with 40 ml air utilizing 60cc luer-lock syringe and stopcock to prevent clots from forming on balloon.

8. ATRIAL FIBRILLATION
   a. CS series IABP’s will automatically adjust for AFib, even rapid AFib in Auto mode.

9. DISCONTINUATION
   a. Administer pain medication, if ordered.
   b. Don personal protective equipment. Perform hand hygiene.
   c. Using clean gloves, remove the dressing and sutures.
   d. Turn balloon pump OFF at the console.
   e. Put on sterile gloves and assist the physician or qualified RT in applying pressure proximal to the balloon insertion site as the balloon is withdrawn.
f. Apply firm, constant pressure proximal to the insertion site for not less than 20 minutes. (Fem-Stop may be utilized) refer to procedure (car11)

g. While pressure is being applied, the distal circulatory status will be assessed and documented. Hemostatic pressure should not be so great as to obliterate the distal peripheral pulses in the affected extremity.

h. After 20 minutes, the pressure will be relaxed slowly and the patient will be observed for any continued bleeding or hematoma formation.

i. If either bleeding or hematoma formation occurs, firm pressure will immediately be reapplied for no less than an additional 15 minutes.

j. If a total of 60 minutes of pressure following the removal of the balloon is not sufficient to stop the bleeding, the physician will be notified immediately.

k. Once hemostasis is achieved, cover the site with sterile 4x4s. Elastoplast may be used over the 4x4s to achieve a pressure dressing.

l. The patient will be instructed not to flex the involved hip more than 30 degrees. The affected leg will be immobilized, as appropriate to the patient, for the first six hours. This restriction will apply for a total of six hours from the time that the balloon is first removed.

m. The dressing will be timed and dated and not disturbed for at least 18 hours.

n. Respiratory Care personnel will disinfect the IABP per manufacturer’s instructions. The IABP will be plugged in at all times to maintain battery charge.

10. ASSIGNED RESPONSIBILITIES:

a. The initial set-up of the IABP will be the responsibility of qualified Respiratory Care or Cath Lab personnel. The Cath Lab and CVICU personnel may prepare infusion set for the IABP.

b. The Cardiac Cath Lab personnel (CVTs and RNs) will assist with the insertion of IABP’s and transport the IABP to the special care unit.

c. Respiratory Care personnel will be available to assist the perfusionist with IABP as needed.

d. For patients on an IABP that goes to Open Heart Surgery, it will be the responsibility of the Respiratory Care personnel to transport the IABP to and from the surgery suite. Respiratory Care personnel will remain with the IABP until the perfusionist assumes responsibility.

e. Prior to leaving the OR, the RCP will handoff report regarding IABP to the perfusionist and circulating
f. It will be the responsibility of the perfusionist to be in the vicinity of the surgery suite to be available to troubleshoot the IABP. The perfusionist and/or respiratory therapist will monitor the IABP during by-pass.

g. Respiratory Care Services will be responsible for the storage and maintenance of the balloon pumps and balloon catheters.

h. Nursing will be responsible for posting “No Heparin” signs at the head of the bed for those patients with “No Heparin” orders.

**DOCUMENTATION:**

**INSERTION NOTES**

a. **Insertion Notes:** To be used by the RN assisting with the balloon insertion. Include:

1) Date and time of IAB insertion, IAB serial number.
2) Initial documentation of IABP functioning.
3) Adequacy of augmentation.
4) Frequency of assist.
5) Location (cath lab, OR, procedure room) of patient when inserted.
6) Doctor who inserted IAB.

**MONITORING AND DOCUMENTATION**

a. The following parameters will be documented in the ICU VS Flowsheet of the EMR a minimum of every hour: device, type, alarm, insertion site, trigger, balloon volume, mode, inflation, deflation, ratio, assisted systole, unassisted systole, assisted diastole, unassisted diastole, mean, augmentation, assess for blood in tubing and site assessment, the insertion date and the discontinuation date.

b. The IABP will be zeroed Q4 hours and PRN, and documented in the intervention section for the IABP on the ICU VS flowsheet in the EMR. Balloon refill will be done on as needed basis, and documented only when done, under the intervention section for the IABP on the ICU VS flowsheet.

Remember, IAB is to be flushed with the IABP in the
standby mode.

l. BAL. REFILL Q2H--click on to Manual/Auto when utilizing EMR or initial this box on flowsheet indicating that the balloon has been purged and refilled at least every two hours.

m. PULSES--utilizing the pulse scale provided on the EMR or pump record, document hourly bilateral radial and dorsalis pedis and posterior tibial pulse assessments. If pulses are weak (1+), confirm with doppler at least every 2 hours and document on EMR.

n. If patient is transported, pulses should be assessed immediately prior to the transport and post transport.

o. Any notations indicating problems, changes, etc. will be documented utilizing add remarks on EMR or using the back of the IABP flowsheet.

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APPROVALS:

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