

# **Policies and Procedures**

**Related to**

**IABP Therapy**

**Courtesy of Datascope Corp.  
Clinical Support Services**

**The following policies and procedures are intended to serve as guidelines for developing hospital policy. They are not recommendations from Datascope Corp.**

# **POLICIES AND PROCEDURES RELATED TO IABP THERAPY**

## **STATEMENT OF POLICY**

The following guidelines have been prepared to establish a quick reference guide for the safe and effective use of Intra-Aortic Balloon Pump (IABP) Therapy.

## **POLICY OBJECTIVES**

To provide general guidelines concerning the insertion, removal and maintenance of the intra-aortic balloon pump.

## **OBJECTIVES OF IABP THERAPY**

1. To reduce cardiac workload by decreasing the resistance of ventricular ejection.
2. To increase cardiac output by decreasing the resistance to ventricular emptying.
3. To improve myocardial oxygenation by decreasing O<sub>2</sub> demand and increasing O<sub>2</sub> supply.
4. To improve coronary perfusion by increasing (augmenting) diastolic pressure.
5. To maintain systemic perfusion.

## **INDICATIONS** (as guidelines)

1. Refractory unstable angina
2. Impending infarction
3. Acute MI
4. Refractory ventricular failure
5. Complications of acute MI e.g.; Acute MR or VSD, or papillary muscle rupture
6. Cardiogenic shock
7. Support for diagnostic, percutaneous revascularization and interventional procedures
8. Ischemia related intractable ventricular arrhythmias
9. Septic shock
10. Intraoperative pulsatile flow generation
11. Weaning from bypass
12. Cardiac support for non-cardiac surgery
13. Prophylactic support in preparation for cardiac surgery
14. Post surgical myocardial dysfunction / low cardiac output syndrome
15. Myocardial contusion
16. Mechanical bridge to other assist devices
17. Cardiac support following correction of anatomical defects

## **CONTRAINDICATIONS** (as guidelines)

1. Severe aortic insufficiency
2. Abdominal or aortic aneurysm
3. Severe calcific aorta-iliac disease or peripheral vascular disease
4. Sheathless insertion with severe obesity, scarring of the groin

**Please Refer to the Instructions for Use Prior to Insertion of the IAB**

## CREDENTIALS FOR INSERTING THE IABP

The physician inserting the balloon should be familiar with the Seldinger technique of arterial cannulation and Judkin technique of cardiac catheterization. It is ideal that the physician has demonstrated at least performance for 25 Seldinger and Judkin procedures if the mode of insertion is percutaneous. A cardiovascular surgeon may perform the insertion by open arteriotomy or percutaneous insertion if he is so trained.

## PREPARATION FOR INSERTION

1. In the presence of patient, family and physician the nurse will assist the physician with the explanation of the purpose and procedures.
2. Written consent must be obtained, except in an emergency.
3. Appropriate personnel must be notified of the insertion. (i.e. perfusionists, CV Techs, etc.)
4. Once consent has been obtained and proper personnel notified, the patient must be transferred to the appropriate unit where balloon insertion will occur (may be at the bedside, in the ICU, CCU, Cath Lab, etc.)

## PROCEDURE FOR INSERTION

1. Gather and prepare equipment necessary

Shave/prep kit  
Betadine prep solution  
Xylocaine 2%  
EKG electrode pads  
Sterile drapes/towels  
Sterile gowns  
Sterile gloves  
Masks  
Caps  
Assorted syringes and needles

Sterile 4 x 4 gauze pads  
Scalpel blade  
Heparinized flush system for arterial pressure line  
Sterile basin  
Suture material  
Dressing equipment  
Datascope Insertion Kit for IAB catheter  
Datascope IAB catheter  
IABP console  
Sterile Normal Saline (bottle)

2. Prepare Room

- a. Prepare equipment in patient room for easy access and safety.
- b. Prepare pressure tubing set-ups for arterial line and any other pressure monitoring catheters, as per hospital policy.

Balloon timing is adjusted utilizing the arterial pressure tracing.

3. Assist the physician with other invasive procedures if necessary.
4. Administer O<sub>2</sub> as ordered.

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| 5. Insert foley catheter and tape to the leg opposite the IAB insertion site.   | Urinary output is a sensitive index of cardiac output. A decreased urinary output could also be indicative of balloon catheter displacement.   |
| 6. Record baseline vital signs.<br>Include: temp, heart rate, rhythm, resp. rate, BP, CO, CI, SVR.  | Baseline vital signs are needed to evaluate effectiveness of IABP.   |
| 7. Obtain baseline lab studies.<br>Include: 12 lead EKG, CBC, Plt. count, PT, PTT, Electrolyte profile, BUN, CR, Type & Cross for blood products (if ordered).  | Hematologic studies are important since heparin may be administered during insertion and platelet reduction may occur during pumping. Blood should be available in the event of trauma during insertion. Other baseline lab work is needed to help evaluate the effectiveness of the IABP. |
| 8. Locate pedal pulses and mark for future evaluation.  | Preinsertion pulses are necessary for evaluating any pre-existing vascular problems and for monitoring distal blood flow to extremities.   |
| 9. Place IABP console at foot of bed and attach ECG electrodes from patient to ECG cable of IABP.   |  |
| 10. Assure properly functioning equipment (i.e. safety chamber leak test)   | See Abbreviated Operator's Guide.  |
| 11. Personnel responsible for set-up of IABP console should initiate initial pump set-up.   | See Abbreviated Operator's Guide for appropriate IABP console.   |
| 12. Shave and prep patient from umbilicus to both groins.   | To establish a clean area for insertion.   |
| 13. Sedate and/or restrain patient prn.   |  |
| 14. Mask, cap, and gown all persons in the immediate area.  | To maintain sterile field.   |
| 15. Sterile gloves should be applied to those persons directly handling insertion equipment and balloon catheter.   | To maintain sterile field.   |
| 16. Enclose "sterile area" and assist team with preparation of operative field.<br>a. Drape patient, maintaining access to all lines.<br>b. Position overhead light (if available).<br>c. Provide required equipment. | To maintain sterile field.   |
| 17. Physician will then locally anesthetize insertion site and insert IAB catheter.   |  |
| 18. Assist as necessary with insertion procedure.   |  |

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| 19. Monitor physical/emotional status of patient. Check vital signs throughout the procedure.   |  |
| 20. A portable chest x-ray will be done once balloon catheter is inserted if procedure not performed under fluoroscopy  | Necessary to confirm catheter placement.   |
| 21. Once catheter placement is determined, catheter is secured in place with sutures by physician. (May be done prior to chest x-ray)   | To prevent movement of balloon catheter.   |
| 22. Check timing of balloon by adjusting highlighted portion of arterial pressure tracing, which occurs when IABP is in standby mode.   | To ensure optimum effects of IAB counterpulsation                                    |
| 23. Connect balloon catheter to safety chamber using 6' extension tubing.   |  |
| 24. Press and hold IAB fill button for 1 second – status message will read "autofilling." When message clears, continue.  |  |
| 25. Initiate pumping  | See Abbreviated Operator's Guide for appropriate IABP console.                       |
| 26. Record post-balloon insertion vital signs. Include: HR, rhythm, resp. rate, BP (assist/ unassisted systolic, diastolic aug., assist/ unassisted diastolic), MAP, CO, CI, SVR.   | To evaluate effectiveness of IABP.   |
| 27. Locate pedal pulses, either by palpation or by Doppler and record.  | To monitor distal blood flow to affected extremity                                   |
| 28. Apply dressing to balloon catheter insertion site using aseptic technique as per hospital protocol.   | To prevent infection.  |
| 29. Initiate anticoagulation therapy, as per physician order.   | To prevent clot formation around IAB catheter during IABP therapy.                   |
| 30. In charting notes include: Physician inserting catheter, site of catheter insertion, catheter size, pt. response, trigger mode being used, frequency of IABP ratio, what arterial pressure waveform looked like post-insertion. (May choose to get a strip recording of arterial pressure tracing and include as part of charting procedure.) | To have a documented record of initial catheter insertion and initiation of pumping. |

## **PROCEDURE FOR WEANING AND REMOVAL OF IAB CATHETER**

When the hemodynamic status of the patient on an IABP has improved to the point where IABP assistance is no longer required, or if the balloon has produced ischemic changes in the extremity in which it was inserted, the attending physician may make the decision to wean the IABP from the patient.

The following guidelines should be followed:

1. Explain the procedure to the patient and his/her family. Helps to reduce anxiety.
2. Weaning may be accomplished by a reduction in IABP frequency, reduction in IABP aug., or a combination of both. The method of weaning will be determined by the attending physician.

## **REMOVAL OF IAB CATHETER**

IAB removal is performed by a physician at the bedside or in the operating room if the IAB was surgically inserted.

### **Equipment and Supplies**

- C occlusion tape
- C protective underpads
- C sterile dressings
- C sterile gloves

### **Nursing Actions**

1. Explain the procedure to the patient, noting that manual pressure will be applied for 30 minutes after removal and bedrest will continue for 24 hours after removal.
2. Use protective underpads judiciously. The IAB catheter and introducer sheath are removed as a unit. Bleeding both proximal and distal to the insertion site is encouraged to expel any potential clots.
3. Once the IAB is removed, apply manual pressure for at least 30 minutes until hemostasis has been achieved.
4. Apply a pressure dressing over insertion site.
5. Instruct the patient to alert you to any complaints of pain or wetness around insertion site.
6. Check insertion site every hour for swelling, bleeding or hematoma formation.
7. Check pedal and posterior tibial pulses bilaterally every hour. Diminished or absent pulses may indicate a need for an embolectomy.
8. Record data.
9. Apply a sterile occlusive dressing every 24 hours until the wound is healed.

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