NURSING PROCEDURE

TITLE: BLADDER/INTRAABDOMINAL PRESSURE MONITORING
A. Preparing the Patient and Bedside Monitor
B. Preparing the Pressure System
C. Obtaining a Bladder/Intraabdominal (IAP) Measurement

CATEGORY-CLASSIFICATION:
RN – Special Nursing Procedure

PURPOSE

- Intraabdominal pressure (IAP) measurements are indicated in patients who are at risk for developing abdominal compartment syndrome.
- The most simple and effective method of determining intraabdominal pressure is by measurement of bladder pressure.
- To assist in determining abdominal perfusion pressure (APP). APP = MAP - IAP. It is recommended that APP remains ≥ 60 mmHg in the presence of intraabdominal hypertension or abdominal compartment syndrome.

NURSING ALERT:

- Intraabdominal pressure is normally zero or subatmospheric.
- Intraabdominal pressures of ≥ 12 mmHg indicate onset of intraabdominal hypertension.
- Intraabdominal pressures of ≥ 20 mmHg that is associated with new organ dysfunction/failure indicate presence of abdominal compartment syndrome.
- Bladder pressure measurements increase the risk of urinary tract infections and therefore strict aseptic technique must be maintained while performing this procedure.
- Use of a volume of 25 mL prevents over-distention of the bladder and false elevation of intraabdominal pressure.

EQUIPMENT

1. Indwelling urinary catheter with urinary drainage bag with Luer-Lok Sampling Port
2. Single channel pressure tubing kit with transducer and stopcock
3. 500 mL bag NS
4. Bedside monitor pressure module and cable
5. Sterile 35 mL syringe
6. Alcohol swabs
7. Tape
8. Appropriate personal protective equipment  
9. Patient mount sticker  
10. Clamp  
11. White dead-ender cap

**PROCEDURE**

**A. Preparing the Patient and Bedside Monitor**

1. Obtain an order from physician to initiate IAP monitoring.  
2. Explain the procedure to the patient.  
3. Wash your hands.  
4. Don the appropriate personal protective equipment.  
5. Position the patient supine.  
6. Verify the presence of an indwelling urinary catheter with urinary drainage bag with Luer-Lok Sampling Port.  
7. Attach pressure cable to any unused transducer port on MMS.  
8. Attach open end of cable to pressure tubing transducer.  
9. Select UAP as label for pressure monitoring.  
10. Select a 30 mmHg scale on the monitor.

**B. Preparing the Pressure System**

1. Prime the pressure transducer system with NS.  
2. Replace all vented caps of stopcocks with non-vented caps.  
3. Attach the 35 mL syringe to the distal stopcock.  
4. Connect the pressure transducer system to the pressure module of the monitoring system with the transducer cable.  
5. Secure the transducer to the patient with a body mount sticker.  
6. Place the transducer where the midaxillary line and iliac crest intersect.
NOTE: The iliac crest approximates the level of the bladder and should be used as a reference point.

NOTE: If the patient cannot tolerate the supine position, place transducer at the level of the bladder.

7. Zero the pressure monitoring system.
   7.1. Silence alarm.
   7.2. Close stopcock to patient line.
   7.3. Vent the transducer (i.e. stopcock) to atmospheric pressure by removing the non-vented cap while maintaining asepsis.
   7.4. Press and hold “ZERO” smart key at the bottom of the main screen until audible “BEEP” is heard.
   7.5. Close stopcock to atmosphere.
   7.6. Return stopcock to monitoring position.

C. Obtaining a Bladder/Intraabdominal Pressure (IAP) Measurement

1. Clamp the bladder drainage tubing just distal to the sampling port.
2. Cleanse the sampling port with alcohol.
3. Connect the pressure tubing to the Luer-Lok Sampling Port.

   NOTE: Refer to Appendix A for picture.

4. Turn the stopcock attached to the syringe off to the patient and open to the fluid bag.
5. Activate the fast-flush mechanism (pigtail) while pulling back on the syringe plunger to fill the syringe to 25 mL.
6. Turn the stopcock off to the pressure bag and open to the syringe and patient.
7. Inject the 25 mL of saline into the bladder.
8. Open the clamp on the urinary drainage tubing and allow saline to flow back just past the clamp to expel any air.

   NOTE: Air in the system may dampen the pressure reading. This method allows for the creation of a fluid filled column in which to transmit pressure from the bladder to the transducer.

9. Reclamp the urinary drainage tubing.
10. Measure the intraabdominal/bladder pressure at end expiration.
NOTE: Measuring at end expiration minimizes the effects of pulmonary pressures.

NOTE: Due to bladder detrusor muscle contraction, it may take 10-60 seconds for the saline solution to stabilize and the bladder detrusor muscle to relax in order to monitor at a steady state.

11. Unclamp the urinary drainage tubing.

12. Remove the pressure tubing from the Luer-Lok Sampling Port.

13. Apply dead ender cap to the end of the pressure tubing to maintain sterility of the pressurized system for future measurements.

14. Leave body mount sticker attached to patient to ensure consistent reference point for future measurements.


   **NOTE:** If patient unable to tolerate supine position, the degree of HOB elevation should be documented with the bladder pressure.

16. Subtract the 25 mL of instilled saline from the hourly output.

17. Report IAP measurements to the physician, as per patient care orders.
REFERENCES:


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Appendix A

Bladder Pressure Monitoring Set-Up

Luer connection @ sample port